Volume 84
Number 13

IRON TRADE REVIEW

Cleveland, O.
March 28, 1929

Senate Is Urged To Kill Patent Confiscation Bill

Industrial Leaders and Patent Commissioner See Serious Menace to Business Interests in Dill Measure—Indirect Attempt To Enforce Law Against Monopoly Would Lead to Injustice

THE Dill bill, now pending in the United States senate, providing for forfeiture of patent rights for violation of the antitrust laws, is being vigorously condemned by leading industrialists and business interests. It is believed the passage of the bill would lead to great confusion in the patent situation, and pave the way to wholesale invasion of patent rights, creating a more serious evil than the measure is intended to correct.

The commissioner of patents declares there is a "grave danger" to industry in the provisions of the bill. The judge advocate of the United States army, long active in patent matters for the government, questions its legality, as do many lawyers of prominence, and it is receiving the active opposition of trade associations, as well as private business interests.

The bill in its original form was introduced in the senate Jan. 23, 1928 by Senator Dill, of Washington, and referred to the committee on patents. It is known as Senate bill 2783. It was entitled:

"*A bill to provide for the forfeiture of patent*

CALENDAR NO. 1523

70TH CONGRESS, 2D SESSION } S. 2783

[Report No. 1493]

A BILL

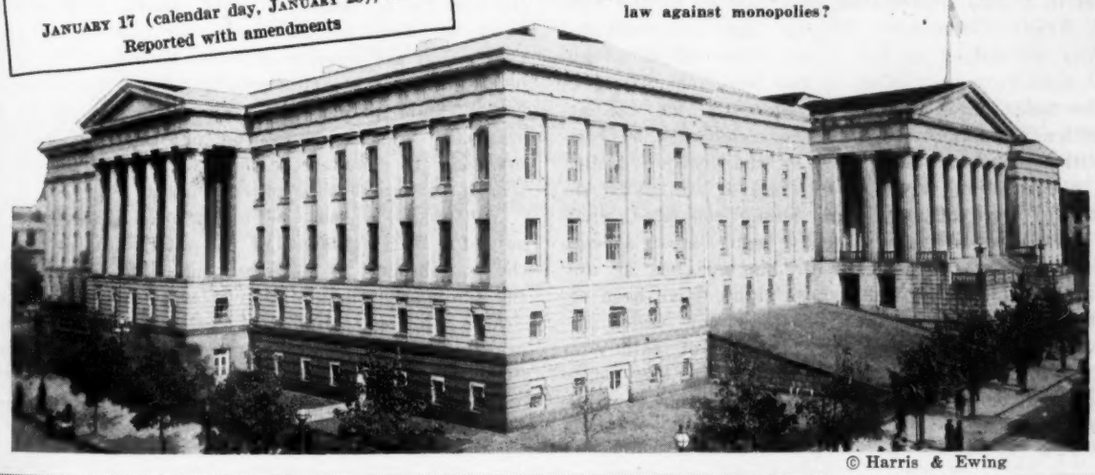
To provide for the forfeiture of patent rights in case of conviction under laws prohibiting monopoly.

By Mr. DILL

JANUARY 23, 1928
Read twice and referred to the Committee on Patents

JANUARY 17 (calendar day, JANUARY 23), 1929
Reported with amendments

Will the patent office be used to enforce the law against monopolies?



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rights in case of conviction under laws prohibiting monopoly."

It was written rather broadly, with forfeiture of patent rights to follow automatically in the event of conviction of the antitrust laws. Subsequently it was rewritten, with this introduction:

"It shall be a complete defense to any suit for infringement of a patent to prove that the complainant in such a suit is a party to any combination. . . . ."

The title of the bill thereupon was changed to read: "A bill relating to suits for infringement of patents where the patentee is violating the antitrust laws."

Five Hearings Held

Hearings were held on the bill on Feb. 8, 9, 20 and 21 and March 7, by the committee on patents, and the author repeatedly stated that the terms of the bill "may be too severe." At these hearings the chief proponents were independent radio and incandescent lamp manufacturing companies, bitter in complaints against the larger interests. Statements were made by Oswald F. Schuette, executive secretary, Radio Protective association, Chicago; Ernest Reichmann, general counsel for the association, and others identified with the radio and lamp interests.

From careful scrutiny of the reports of the hearings it is evident that the bill has been drawn for the purpose of striking at the Radio Corp. of America and other companies whose extensive patent holdings give them alleged monopolistic influence on business in their respective fields. It would seem that Senator Dill has taken up the cry of members of the Radio Protective association, whose chief complaint is that the Radio Corp., in holding the majority of radio patents and in refusing to extend to the smaller companies licenses to manufacture parts protected by these patents, is wilfully restraining trade.

Representatives of the leading radio manufacturing corporations denied they are operating in restraint of trade, and submitted evidence to show that they are conducting their business, under patent rights, and in compliance with other laws, to the great benefit of the masses of people.

While a few other interests appeared before the committee, the principal dispute was between radio companies. Passage of the bill was not urged by the representatives of other industries. The bill was reported for passage and is now pending in the senate. It may come up for action at the approaching session.

* * *

SEVERAL important conclusions can be drawn from the hearings. One is that the real sponsors of the Dill bill are disgruntled independent radio manufacturers. A second is that the target of the bill is the Radio Corp. of America. A third, and most important conclusion, is that the sponsors apparently do not care how much hardship is imposed on industry at large providing they are successful in "getting" the Radio Corp.

Thomas E. Robertson, commissioner of patents, was the principal defender of the patent system in the hearings. As quoted elsewhere in these pages, he declared the proposed bill would undermine the entire patent structure upon which American industry is reared.

Lt. Col. Joseph I. McMullen, judge advocate, United States army, in his testimony before the committee, pointed to the disaster that would follow if the proposed law were enacted. The government is defending suits for nearly a billion dollars in connection with its patents, and Colonel McMullen has been associated with this defense for ten years. He said:

"You already have your penalties under the Sherman and Clayton acts, and to add to that an undefined addi-

How the Dill Patent Bill Was Modified

The Original Bill

BE IT enacted by the senate and house of representatives of the United States of America in Congress assembled:

That whenever any owner or holder of a patent or patent rights has been found guilty of violating any law of the United States relating to unlawful restraints and monopolies, or to combinations, contracts, or agreements in restraint of trade by any court in a final adjudication of a case or by the Federal Trade Commission or by any governmental agency authorized by law to act, from which no appeal shall have been taken or can be taken, all rights under said patent or patents entering into the acquisition or manufacture of the commodity or commodities of commerce covered by the decision declaring a conviction, which are owned or controlled directly or indirectly by said person convicted, shall not thereafter be enforceable by said person so convicted, nor by his assignor or his assignee or any person holding under him, whose rights have been acquired subsequent to the violation upon which the conviction is based, and the pleading of said conviction shall be a good and full defense to any action brought after such violation for which conviction has been obtained.

The New Bill

BE IT enacted by the senate and the house of representatives of the United States of American in Congress assembled:

That it shall be a complete defense to any suit for infringement of a patent to prove that the complainant in such suit is a party to any combination (in the form of trust or otherwise), agreement, understanding, license or cross-license relating to or involving the use or control of said patent, with any patentee or other person owning or controlling patent rights that are directly or indirectly related to or connected with the business resulting from the use or control of said patent, the effect of which is to substantially lessen competition or tend to create a monopoly in commerce arising out of the use or control of such patent or patent rights.

Section 2—It shall be a complete defense in any suit for infringement of a patent to prove that the complainant in such suit is using or controlling the said patent in violation of any law of the United States relating to unlawful restraints and monopolies or relating to combinations, contracts, agreements or understandings in restraint of trade, or in violation of the Clayton Act or the Federal Trade Commission Act.

tional penalty I do not believe the court would agree to. I think they would say it was a confiscation of property without just compensation and illegal under the fifth amendment.

"I think it is fundamental, that punishment for violation of law must be more or less defined, and if you wish we will take as an example the American Telephone & Telegraph Co. or the Standard Oil Co. of New Jersey, and I imagine that company's oil-cracking patents are worth $500,000,000 to them. If they were found guilty of a violation of the Clayton act, we will say, naturally they would be fined $5000; but under this bill they would immediately forfeit all of their rights to those patents, and I think the Supreme Court of the United States would say it was unreasonable —that is, under the wording of this law, but I think it could be reached."

The Dill bill is called "vicious" in a bulletin issued by the National Machine Tool Builders' association, over the signature of its general manager, Ernest F. DuBrul. In reviewing the hearings on the measure, the bulletin states:

Involves Whole Patent System

"The arguments of the commissioner of patents simply went for nothing with the committee who were swayed by sentimental ideas rather than by actual facts. The commissioner pointed out that the passage of this bill would go far to destroy the whole present patent system, on which our industrial progress has depended in the past. Senator Dill, who was very keen on putting a crimp in the Radio corporation, did not seem to realize that his bill likewise might easily put a crimp in many a small business.

"Certain vicious features of the bill were pointed out by some of the opponents. They cited that in the two cases of the United Shoe Machinery Co., certain policies connected with leases which had been sustained by the Supreme Court were later on made illegal by Congress under the Clayton law and this change was sustained by the Supreme Court in a later case.

"Under the first decision, the United Shoe Machinery Co. continued its leases that had been declared legal. The company, of course, could not have known until the second decision that the acts complained of became actually illegal. But if this bill had been the law, it would have forfeited all the company's patents for continuing to do what the Supreme Court said it had a right to do.

"In view of the divided opinions of the Supreme Court, and the various lower courts, in cases under the antitrust laws, it is obviously impossible for any lawyer to say in advance whether or not the Supreme Court will eventually hold a license contract as violating the antitrust laws. Yet this bill would make the value of patent property dependent absolutely on the validity of the best guess that the lawyers can make.

Bill Lacks Protection

"An innocent licensee may have built up an entire business under the protection of a patent license. But under this bill he could be deprived of the protection of the patent, and would be compelled to meet open competition by infringers. This could happen if the owner of a patent having outstanding licenses would be convicted of violating the antitrust laws, without any participation in the violation by the licensee.

"Another vicious thing in this bill is its uncertainty. It would be impossible to tell in advance just what patents might be affected by a conviction for violation of the antitrust law. No provision is made for identifying such patents. Therefore, before taking a license the proposed licensee would have to make a search as to violation of the antitrust laws, not only by parties with whom they are negotiating a license, but by any and all assignors and licensees and any other party having any interest at all in the patents during their life. Even after the lawyers have made the best guess they could, the client would invest his money in patents at his peril, because some court might arrive at a different conclusion as to the effect of a judgment under the antitrust laws."

* * *

ADMITTING that it is not perfect, the patent system is an important element in the foundation of American industry. Patents constitute an absolutely indispensable asset to the majority of companies engaged in production and manufacturing. The sanctity of patents is especially vital to the interests of manufacturers in the metalworking industries.

Few Protests Made

Despite this fact, the hearings thus far have disclosed no protest emanating directly from these manufacturers. Apparently the danger has not been sensed by those outside of the electrical industries.

Members of the senate committee and all senators should inform themselves of the probable effect of the Dill bill before they act further upon it. Manufacturers of equipment and all others whose patents would be jeopardized by the bill should advise their senators of the true situation.

By his own statements, Senator Dill admits his ignorance of patents and their importance to industry. In fairness to him it must be said that he has acknowledged that perhaps his bill "goes too far." He says:

"I am perfectly willing to rewrite the law to reach the situation. I introduced the bill because I did not know much about this subject but I did know what I was striking at. . . . My purpose is to prevent the building of these great monopolies that crush down all individual, independent people in the same line of business because a combination of little patent monopolies together makes that possible."

If Senator Dill's concern for the "individual, independent people" is real, he will withdraw his bill, because if enacted, it would undermine the patent system and ultimately take away from all patent owners—large and small—the protection to which they are entitled. For every large enterprise, such as the Radio Corp. of America, which would feel the sting of the bill, there would be many small companies similiarly affected.

"A Grave Danger to Industry," Declares Patent Commissioner

AT A hearing on the Dill bill before the senate committee on patents, Thomas E. Robertson, commissioner of patents, made the following statement:

"The point that seems to impress me most about this bill is that if any patent owner, and I mean licensee, as well, is engaged in anything which thereafter is held to be in restraint of trade, even though at the time it is started the courts are holding that it is not in restraint of trade, under provisions of this bill the court must say: 'No, you cannot have any relief in a court of equity under your patent rights.'

"I think that is a grave danger to the patent system, and being a grave danger to the patent system, is a grave danger to the industries of this country founded upon patents."

Commissioner Robertson referred to a case involving restraint of trade in which the Supreme Court reversed itself, and added:

"If any practice like that is indulged in after the Dill Act of 1928 *passes, why the owner of that patent in following out what the Supreme Court might say is not in restraint of trade, but which it afterwards says is in restraint of trade, would be robbed of any right of coming into a court of equity."*

Large Uses of Steel in Small Ways

137th Article—Windows

STEEL windows for residential, commercial and industrial buildings absorb 75,000 to 100,000 tons of steel annually in the United States, according to a leading manufacturer. While Webster defines a window as an opening in a wall for light or air, and a window means glass to a glass manufacturer, the makers of the steel casements and frames designate them as steel windows, and they are generally known by that name. The demand is constantly improving because of their durability, simplicity, attractive appearance, and the fact they fit securely, thus reducing loss of heat.

An important manufacturer uses rolled sections, especially made for the purpose, of steel of varying contents of carbon, depending on each type of window. The material used by another maker is received in the form of hot rolled bars. Some cold rolled strip also is used, but this forms a small percentage. Some fabricators are using copper-bearing steel. Welding is used extensively in the manufacture of the windows.

Involves Five Steps

The operations of one of the leading manufacturers are divided in five main groups:

1.—Cutting the bars to proper length, punching holes and slots, and attaching handle brackets.

2.—Jointing and assembling muntin bars and locking the joints.

3.—Welding the butt of the outside and swingleaf frames, and finishing the surfaces around the welds. Placing assembled muntin bars in frames, both stationary and swingleaf, and riveting them in place.

4.—Attaching and drilling hinges, and inserting bronze bushing and hinge pins.

5.—Inspection and painting.

Hot rolled steel bars are fed into machines that cut them to proper length and at the same time shape the ends. The frame bars are cut off at a 45 degree angle, and the muntin bars are shaped to fit in the slots provided for them in the frame bars. Then the bars move on to a punching machine. Slots are punched in the frame bars, in which the muntin bars will be riveted. Weep holes, pin holes for glazing clips and fitting holes by which the casements will be fastened to the building when installed, also are punched in the material, accurately so they may be used as guide holes in further processes of manufacture. The punching machines have long beds so the whole bar may be placed in it and the dies can punch all the holes of one kind at one operation. Two sizes of bars are used, the heavier for the outside and swingleaf frame, and the lighter for muntins. At this point a handle bracket is attached to the bar of the swingleaf frame. The bracket is riveted on and also is welded to the bar.

After the steel bars have been cut to shape, punched and assembled they are welded. Strength of the welded joint is illustrated

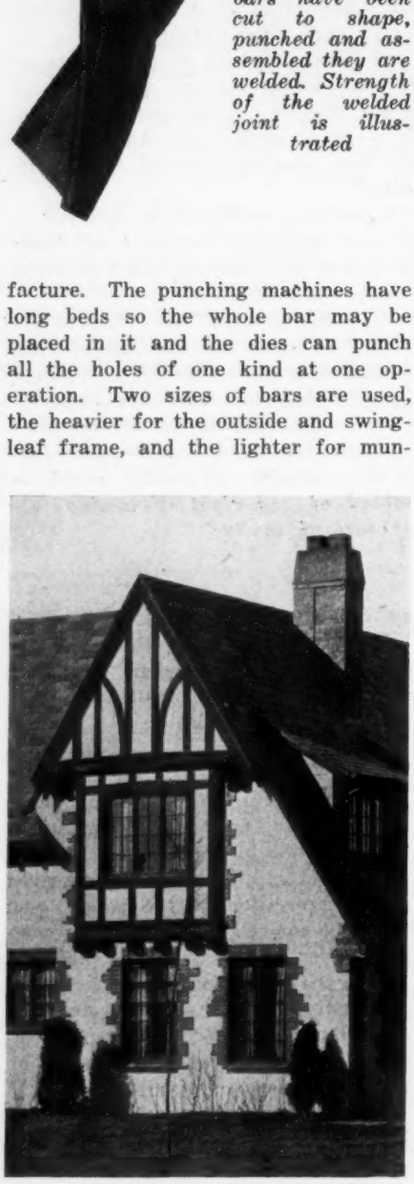
In the second group of operations, joints are made in the vertical muntin bars. A small slit is put in the bar to free the head of the T-bar from the stem at the place where the horizontal bar is to pass through. The stem is bent in this operation, so in the next operation it is straightened. The bridge is formed by a die that raises the head of the T-bar so that the head of the horizontal bar can pass through the opening which is formed. Next a die cuts a slot in the stem to admit the stem of the horizontal bar, and at the same time sizes the opening for the head. Two small nicks are made in the head of the horizontal bar at the point where the vertical bar will be pressed down on it to form the joint. The horizontal bar is passed through the vertical bar, and the two are locked solidly together.

Bars Joined By Welding

The next assembling operation is the butt welding of the parts for the outside frames and the swingleaf. Two different machines are used for the different sizes of bars but the operation is the same in both cases. As these bars have been cut off at an angle of 45 degrees they form a miter joint. Two are placed in the welding machine, and are held firmly in the correct position. Gradually the machine brings them together and at just the right moment electric contact is made and ends of the bars are joined. The welded corners are smoothed on large emery wheels. The ends of the muntin bars are held against an air hammer which rivets the ends and holds them solidly in place. The assembly is then inspected and straightened.

Striking bars and other interior bars now are put in. These have been punched and slotted, and the striking plate bars have been machined to insure a tight fit. The ends are riveted in the slots, and in some instances they are welded to insure strength. After these bars have been put in

(*Concluded on Page* 845)



Steel casement windows fit snugly, conserving heat, while they add to the artistic effect of nearly any style of architecture

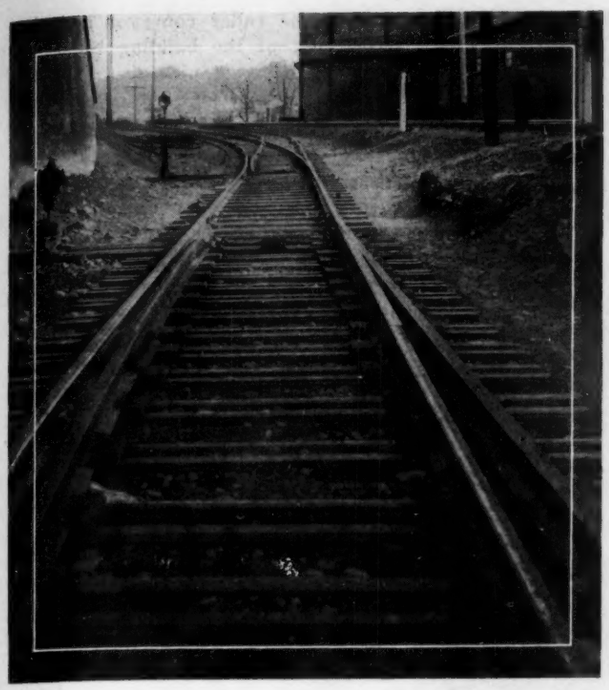


Fig. 1—An installation of welded railroad ties in the Delaware & Hudson siding entering the General Electric Co., at Schenectady, N. Y.

Fabricates Welded Steel Railroad Ties On Production Basis

By H. R. Simonds

Associate Editor, Iron Trade Review

THE familiar railway tie is another important product of our modern industrial life to come under the revolutionary influence of steel. The scientific handwriting on the wall points to the eventual complete obsolescence of the wooden tie. One of the most successful substitutes is a tie made from scrap rails. This type of tie and its economic advantages have been described in previous issues of IRON TRADE REVIEW.

Convinced of the future importance of this steel rail tie, the Delaware & Hudson railroad equipped a shop for the fabrication of welded steel ties on a production basis and as this is one of the first shops of the kind in the country much interest attaches thereto. The plant in general includes a receiving rack and platform where rails are cut to 8-foot lengths; a roller conveyor which carries the rails in pairs to the welding machine; a second conveyor which carries the completed ties from the welding machine; and an electric hoist for loading the ties into cars for delivery to different points of the railroad. The welding machinery is housed in a steel building. Fig. 6 shows the general layout with the receiving rack at the right and the welding house in the center.

Before giving a detailed description of the apparatus, it may be well to explain briefly the method of construction, although this information has been published previously. Railroads at present are forced to sell large tonnages of scrap rails each year, and naturally if this material can be used in new construction its cost may be figured at the scrap value. Various types of ties built up from these scrap steel rails have been tested but the design now being used successfully by the Delaware & Hudson railroad is shown in Figs. 3 and 4. Rails of 67 pounds, 80 pounds and 90 pounds weight are used. These rails sent in from the various divisions of the railroad are packed in orderly piles near the receiving rack and platform. An overhead traveling crane equipped with an electric magnet transfers the rails from the stock piles to the platform.

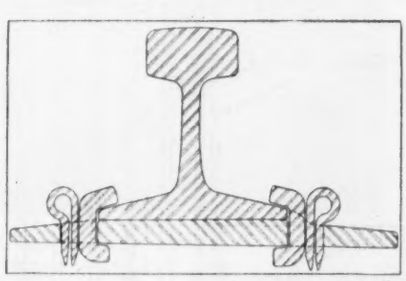
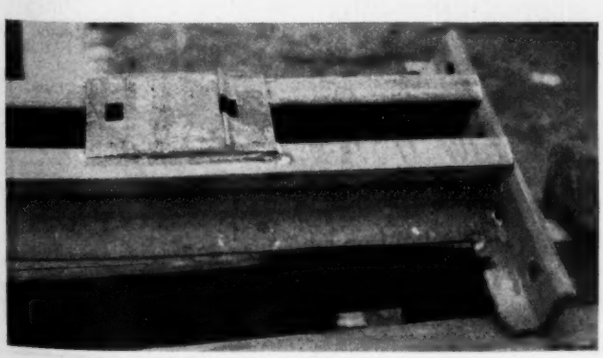


Fig. 2—Spring keys and clamps fasten the rail to the steel ties

The rack itself is equipped with metal guide strips at 8-foot intervals



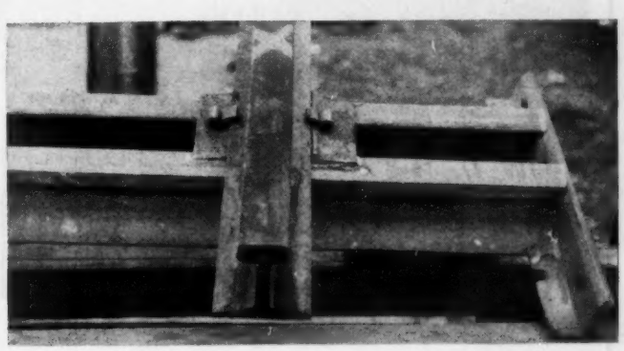


Fig. 3 (Left)—A close-up view of a welded steel tie. Fig. 4 (Right)—This shows how the rail is held in place on the tie

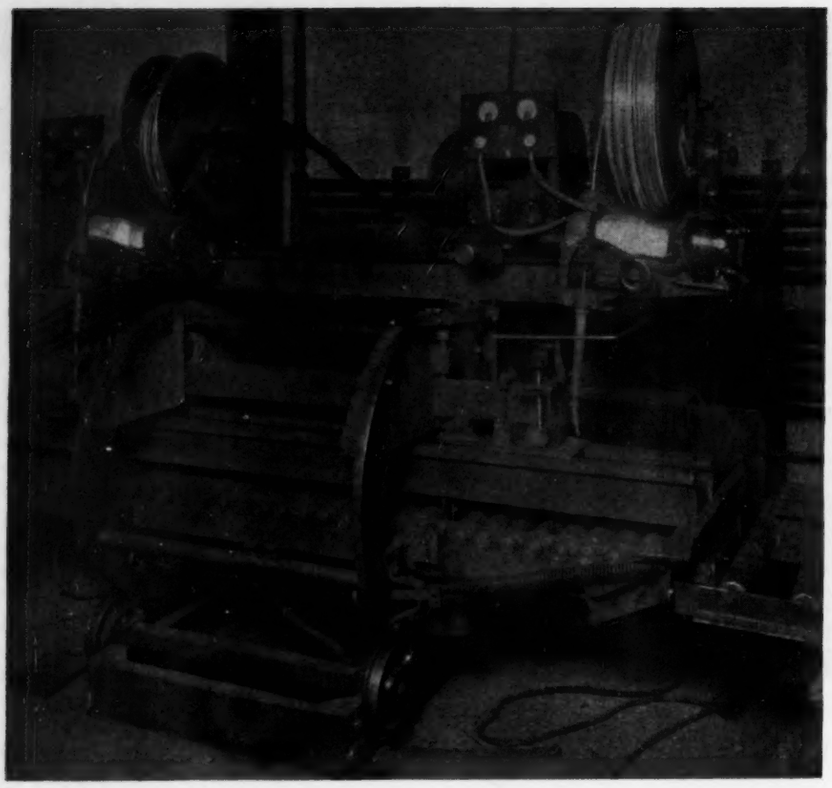


Fig. 5—Three men using this automatic arc welding machine fabricate 70 ties a day

to facilitate the cutting of rails to length. The actual cutting is done with an oxyacetylene torch. Pairs of 8-foot pieces are cut from the same rail as far as possible so that they will be approximately the same height in the finished tie. These pairs are shoved onto the conveyor and then pass through an opening in the side of the building to the welding machine. After being welded the completed tie is rolled onto an extension of the roller conveyor and thus passes out of the building to a platform where it is picked up by electric hoist which loads it directly into a car standing nearby.

The plant already has fabricated more than 14,000 ties and some 8000 of these have been installed and now are in service. Fig. 1 shows a portion of a siding, including switches, which has been laid on welded rail ties. As indicated in the illustration each tie is made of two lengths of rail placed parallel and a few inches apart. These are joined at their ends by scrap angle bars welded in place. Standard tie plates then are welded in the proper position. These not only support the track but also strengthen the tie itself. The track rail is fastened to the tie by means of clamps and spring keys, as shown in the sketch in Fig. 2.

The welding machine, manufactured by the General Electric Co., Schenectady, N. Y., consists of a revolvable jig with a roller bed and two circular tie holding frames with openings for receiving the rails which are to be welded. The arrangement is shown in detail in Fig. 5. The roller bed of the machine is at the same level as the approach and this makes it possible to roll the ties quickly and easily into place. As soon as they are in place they are separated to the proper positions by means of spacers and are lifted off the rolls by brackets underneath. This permits the placing of the

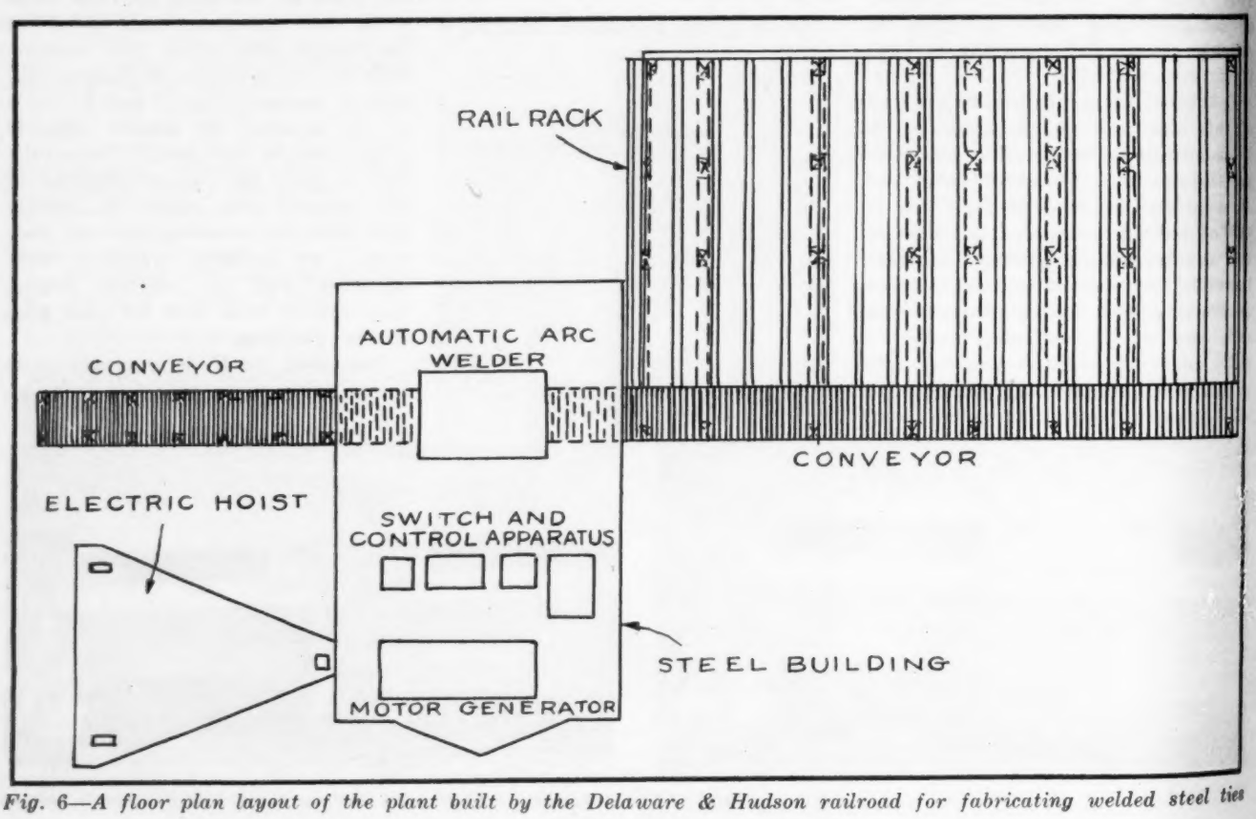


Fig. 6—A floor plan layout of the plant built by the Delaware & Hudson railroad for fabricating welded steel ties

angle pieces at the end. The lower brackets are operated by pneumatic plungers by means of which the rails with the tie plates resting on top are held firmly against the ends of a cross bar which extends through the circular frame. Spring and toggle operated clamps hold the angle bars firmly in place.

When thus assembled the entire mechanism is rotated first toward the front of the machine for making one set of welds and then towards the back of the machine for making the front welds. The tie plate welds are made by automatic welding heads which move with the framework at the rear of the machine. During the time that these welds are being made two operators using hand arc welders fasten the angle pieces to the ends of the rails. When all the welds have been completed the jig is turned back into normal position, the clamps are released and the tie is rolled ahead onto the conveyor making way for the next set of rails to be welded.

The entire plant is operated by four men not including the scrap crane operator who spends only a portion of his time in placing the scrap rails on the receiving rack. Of the four men at the plant one is employed on the receiving rack, cutting the scrap rails with the oxyacetylene torch; two work at the welding machine, setting the rails in position, starting the automatic welders and then making the welds on the angles at the rail end. The fourth man rolls the rails to the welding machine, supplies the welders with tie plates and angle bars and loads the completed ties into the cars by means of an electric hoist. This gang of four men averages 70 ties complete in an eight-hour day, which means approximately seven minutes for one tie.

The total labor charge is about 40 cents a tie. Power, welding wire and overhead probably bring the cost of fabrication exclusive of material to 65 or 70 cents. The material figured on a scrap basis and for the average weight of tie comes to about $3.50 bringing the total cost of the tie up to $4.20. Many other considerations must be taken into account. The old rails must be handled and shipped in order to secure the prevailing market price for scrap. The cost of storing new ties is practically eliminated and, of course, there is no need of carrying fire insurance on the steel ties.

The Delaware & Hudson Co. reports entire satisfaction in the actual operation of trains over tracks laid on welded ties, and it is probable that as the use of this type of tie is extended further economies in fabrication will be developed.

Fig. 7 (Lower left)—Scrap rails placed on specially constructed racks are cut to length with the oxyacetylene torch. Fig. 8 (Upper right)—One man with a small electric hoist loads the finished ties into a waiting freight car

Manufacture of Windows Takes Large Tonnage

(*Continued from Page* 842)

the frame, muntin bars are inserted.

Hinges are riveted to both the swing leaf and the outside frame. The corner of the swing leaf is placed in a machine and a large die drops on it, carrying the hinge with it. It places the hinge in position and rivets it in one operation. Hinges and rivets are put in place on the outside frame by a workman, and a machine rivets them in place. Holes then are drilled in the hinge and the bronze bushings and hinge pin are put in place and riveted. The casement now is complete except for the hardware that is attached in the field.

Finally, the casement is placed upright in a rack and a workman straightens and aligns everything so that the swing leaf fits tightly. An inspector tests the fit of the swing-leaf with a feeler gage, and if O.K., clips are placed between the swing-leaf and frame to hold them slightly apart and the casement is given a dip coat of lead and oil paint.

Simplified Fencing Pays

Results and benefits of applying simplified practice to woven wire fencing are described by H. P. Dalzell, of the research unit, department of commerce, Washington, in a statement just issued. It is pointed out that by progressive elimination the variety of fencing has been reduced 89 per cent and the packages 93 per cent. Recommendation to the adherence is practically 100 per cent.

Steel foundry of the Bochumer Verein, Bochum, Germany

European Steel Industry Gaining Despite Some Drawbacks

Better Balance Attained by Producing Countries—Uncertainties Are Disappearing—World Market Buying Heavier

By Vincent Delport

European Manager, Iron Trade Review

BUSINESS conditions in Europe, as seen by IRON TRADE REVIEW correspondents, as condensed by its European manager, have made gains since the preceding quarterly review. While the important iron and steel producing countries remain in their relative positions, some of the smaller countries have moved into better positions. Norway, reported three months ago as fair, now is classed as fair to good. Portugal has moved from poor to poor to fair. On the other hand, Yugo-Slavia has dropped from fair to good to only fair.

In general conditions all over Europe are better than three months ago and some of the uncertainties then present have been removed. At the same time some unexpected deterring factors have arisen to obstruct the orderly development of business. Unprecedented cold has frozen rivers and interrupted transport. Settlement of German labor difficulties has imposed burdens on producers in that country. Difficulty in making collections has appeared in several countries.

England is aided by increased export trade. Belgium and France have increased domestic demand and look less to exports to maintain activity. Germany is overcoming the difficulties following the Ruhr stoppage. Poland has signed an agreement with Germany in regard to exports to that country and purchases of items not made in Poland.

BRITISH business is marked by the present favorable trend of export trade. Exports of iron and steel during January were 421,191 tons, which, in the past ten years, were exceeded only in May, 1927, when the tonnage exported was 422,400 tons, and in May, 1923, when the figure was 424,500 tons. It was pointed out by the president of the board of trade at the dinner of the Chamber of Shipping in London Feb. 21 that, while the balance of imports over exports in 1928 was £359,500,000 ($1,750,000,000), the invisible exports are estimated at £508,000,000 ($2,500,000,000), and thus the real balance in favor of Great Britain for the year's trading was £150,000,000 ($750,000,000), as compared with £96,000,000 ($475,000,000) in 1927 and nothing in 1926. It was emphasized on that occasion that out of the surplus of £150,000,000 for 1928 the shipping industry contributed £130,000,000 ($650,000,000). These figures, and also the January returns, show a decidedly better trend in British export trade.

In the quarterly economic supplement of its bulletin, the Federation of British Industries states: "The factors may be said to be favorable to a continuance of the modest expansion of trade of 1928; in particular, the revival in our export trade which began last year should continue to make progress. But so long as the present credit stringency persists it is not easy to foreshadow any

marked change for the better in the condition of the distressed trades, though schemes of reorganization and rationalization will doubtless be undertaken."

Reports from the various iron and steel districts have been encouraging, and the shipyards also have been more active, while several important engineering contracts have been secured. The Scottish center, however, still lags behind other industrial districts. Output of pig iron in January was 563,900 tons, 13,000 tons in excess of the monthly average of 1928; output of steel was 761,600 tons. This figure was exceeded in February, March and April last year, but is higher than the monthly average of many years past. According to statements made since the opening of the British industries fair at the beginning of February, the scale of this year's event has broken all previous records, and many important contracts have been passed with the representatives of overseas firms. A development which should have a stimulating effect in industry generally is that contracts amounting to £3,000,000 ($15,000,000) are being placed by the central electricity board for transmission lines in central and northwest England, and for cables and switching gear in connection with work in southeast England. Already contracts for over £3,000,000 have been previously placed. This expenditure goes toward the national scheme of electrification that was passed by parliament last year.

Considerable improvement in the coal industry is a gratifying feature of present conditions. The long period of abnormally cold weather which prevailed throughout February has naturally given a fillup to the coal trade, but increasing activities in the heavy industries should be regarded as a more stable basis for the improvement of the coal situation. The coal export trade also is expanding, and the tonnage shipped in January was 4,472,631 tons, as against 4,184,327 tons in December, 1928, and 3,904,700 tons in January, 1928. Some collieries have been reopened since the beginning of the year. Since the great frost certain collieries have been working to capacity. New amalgamations have been made, and in many cases the margin of loss has been lessened, while in others, profits actually have been made. The improvement of the coal and ship building industries, which are the leading basic industries of the country, is encouraging. It should not be thought that present conditions as yet approach anything like normal prosperity. Unemployment figures continue high, the number out of work Feb. 18 being 1,458,000, compared with 1,342,505 Feb. 11 and 1,136,687 Feb. 20, 1928. However, a continuance of the gradual expansion of business now noticeable can be hoped for.

Conditions in Germany are somewhat uncertain and reports are in some measure contradictory. On the one hand, iron and steel production in January closely approached the record figures of January, 1928. The

How European Countries Rank in Business

Good—*Holland, Belgium, Luxemburg, France, Czecho-Slovakia, Switzerland.*

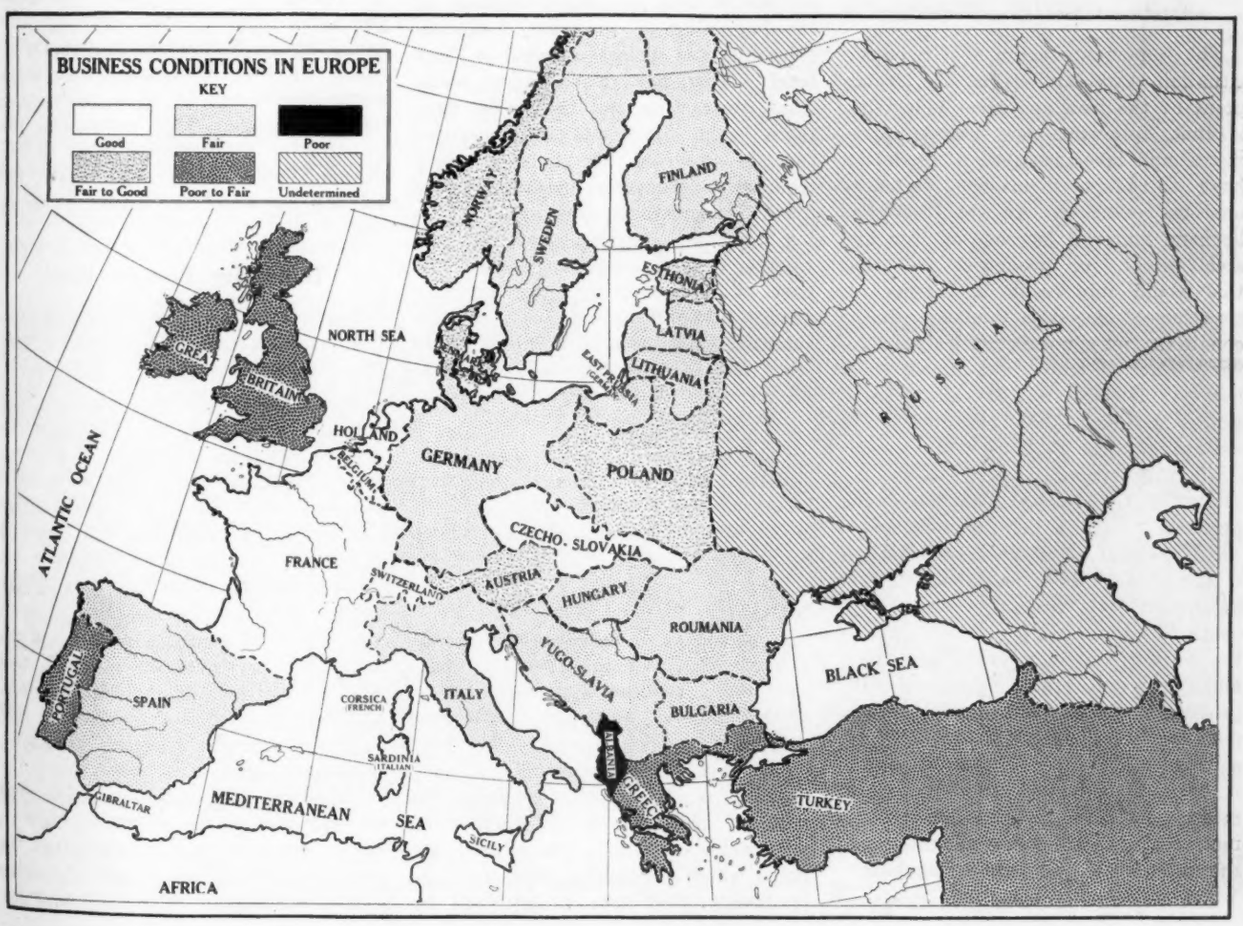
Fair to Good—*Norway, Esthonia, Poland, Denmark, Austria.*

Fair — *Sweden, Finland, Lithuania, Latvia, Germany, Spain, Italy, Hungary, Rumania, Yugo-Slavia, Bulgaria.*

Poor to Fair—*Great Britain, Portugal, Greece, Turkey.*

Poor—*Albania.*

Undetermined—*Russia.*



output of pig iron was 1,097,980 metric tons in January this year, against 1,180,576 tons a year ago, and the steel output was 1,469,653 tons and 1,470,936 tons, respectively. While domestic iron and steel business is dull, export trade has been expanding. Iron and steel exports in 1928 were just over 5,000,000 metric tons, compared with 4,500,000 tons in 1927, and it is likely that returns for the beginning of this year will be satisfactory. Krupps and other leading firms have plans for plant extension.

The syndicate of machinery manufacturers in its report covering January state that the occupation of the works has receded by 2 per cent, and that the difficulty in obtaining regular payments from purchasers is increasing. The machine tool market is satisfactory, but there has been no revival in demand for textile machinery. Among industries that have shown some improvement since the beginning of the year are coal and chemicals. With regard to coal, however, the improvement was mostly due to seasonal conditions. On the other hand, building activities have been drastically curtailed. Undoubtedly during February domestic business was hampered by arctic weather conditions. This, however, is a transient feature.

Adjustment Becomes Necessary

The important factor of Germany's situation, especially from the standpoint of the iron and steel industries, is that, following new wages agreements and labor legislation, producers have to adapt themselves to more onerous conditions. As yet there has been no material increase of iron and steel prices, for producers feel that this would only result in further restriction of domestic demand. Credit conditions may not be entirely in favor of active trade, and money may not be plentiful, but it can be generally assumed that consumers are maintaining an attitude of reserve while negotiations relating to the revision of the Dawes plan are being pursued. Until a definite solution of the important question of reparations is accepted by both sides, an element of uncertainty remains, which prevents full resumption of confidence on the part of the consuming industries and of an aggressive sales policy by producers. In the meantime, past experience has shown that Germany has a wonderful power of recovery, and it may be assumed that while domestic business remains quiet, German makers will take advantage of the possibilities of export markets.

The French industrial situation continues active and, judging from the development of the first two months, 1929 should consolidate the progress made last year. The financial situation of the banks and leading industrial firms is strong, and the political situation appears to be stable for the time being. The production of iron and steel for January exceeded all previous figures. According to provisional estimates, the output of pig iron was 905,000 metric tons, and the output of steel ingots and castings was 837,000 tons. It will be remembered that 1928 was a record year.

The outlook for the iron and steel and allied industries is favorable. Heavy orders have been received from the railroads, important building schemes approved by parliament last year under the provisions of the Loucheur bill soon will be started, and there are several important schemes of public work that will materialize during the year. Prices show signs of stability, although a rise in coal and coke is considered likely toward the beginning of April.

Business Outlook Is Bright

In the Saar district the occupation of heavy industries is satisfactory and transforming works are registering better business. Belgium has been enjoying an active period. The volume of iron and steel business at the beginning of the year was considerable and prices reached a high level. Now new business is somewhat contracting, but the works have their books filled and their occupation is provided for two or three months; consequently, markets remain firm. Industrialists were anxious during February, fearing that the cold weather might temporarily close the port of Antwerp, thus forcing producers to build up stocks at a considerable expense. However, the scare now is over, but there is a fear that freight rates may be increased by Belgian railroads.

The outlook of the Luxemburg iron and steel trade is promising and prices have reached a satisfactory level. It is likely that wages will be adjusted downward, since the index of the cost of living has decreased by about 6 per cent in the past year. This would have a beneficial influence on production costs. In another direction costs tend to be reduced by rationalization of the industry, as shown by the fact that the Arbed concern recently blew in a blast furnace stack of a daily capacity of 450 tons to replace two units of 150 tons each. Further replacements will take place at Dudelange where eventually, three furnaces producing 1350 tons a day will replace six stacks with an aggregate daily output of 900 tons. When these changes are completed the number of workmen will be reduced by 800. The Hadir concern also is modernizing its blast furnace equipment.

Reports from Poland are to the effect that conditions in iron and steel works in January showed improvement compared with December. The volume of orders has increased, and with the opening of the building season further expansion is anticipated. It has been stated that certain Polish steelworks will endeavor to increase their output of special steels for the automobile industry in order to develop the exportation of this product. Provisions of the agreement signed between representatives of Polish and German steelworks at Berlin, Dec. 21, 1928, now are known. The Polish industry can export to Germany, through the agency of the German syndicates, 0.5 per cent of that country's domestic trade, which percentage amounts to about 50,000 tons. In addition, Poland can export an annual tonnage of 165,000 tons of scrap to Germany. German steelworks can sell to Poland those steel products that are not manufactured in Poland. During the existence of the agreement Poland will refrain from exporting rolled steel, tubes excepted, to the United States and Canada. Poland also will transfer to Germany any rail tonnage attributed to the Polish works by the Erma and which these works might not be in a position to take advantage. This agreement will be effective at the same time as the German-Polish commercial treaty, the signing of which is expected before long.

Difficulties Rise in Italy

Conditions in Czecho-Slovakia continue satisfactory. In Austria also the situation presents itself favorably.

Industrial conditions in Italy are active, but prices are unsatisfactory and considerable difficulty is reported in obtaining payment from purchasers. Unemployment has increased during the winter, principally due to seasonal influences in the agricultural and building trades. The monthly output of pig iron now has reached an average of 55,000 metric tons, while the steel tonnage averages 185,000 tons and rolled products 175,000 tons. These figures are higher than the 1928 monthly averages. Generally speaking, conditions are rather unsettled. The Italian iron and steel association plans to reorganize the industry, but an important concern remains outside the association and no material results can be achieved without unanimity.

Using Electric Industrial Trucks To Reduce Production Costs

Fig. 1—A high-lift truck handling chain hoist pulleys. Note the congested area in which the truck does its work

By C. B. Crockett

MATERIALS handling adds only to cost and nothing to the value of marketability of the product. Investment in materials handling equipment carries with it none of the lure of greater sales volume or easier selling. It adds no talking feature to the finished article. It affects only production costs—and after all, is not the goal of an increased profit attained more easily and more directly by a reduction of manufacturing cost than by any other method?

A complete analysis was made recently of the materials handling equipment owned by 105 plants in the metalworking industries. The accompanying table shows the percentage of plants in the different branches of the metal industry using each type of equipment. A plant was not considered as employing a certain type of equipment merely because it owned one or two of that type; only when the plant actually utilized that type of equipment in one or more of the seven major handling operations was it considered as employing the equipment.

Hand trucks always have and probably always will be employed for certain operations, but is it not surprising to find that 90 per cent of the automobile plants, 100 per cent of the foundries, 90 per cent of the iron and steel mills, 79 per cent of the metal products manufacturers and 97 per cent of the machinery manufacturers use a method so inextricably connected with hand labor and its attendant expense? We find other things which we should expect. The automobile plants show the widest application of all types of mechanical handling equipment, particularly conveyors and electric trucks; the plants handling heavier materials, for example the foundries, steel mills and machinery manufacturers, show a natural preference for overhead cranes and industrial railways.

A set of tables compiled in the analysis showed the reasons advanced by these same companies for the use of the particular type of equipment where employed. The tables are too complicated to reproduce, but the prevalence of certain answers should provide food for thought on the part of the management of plants.

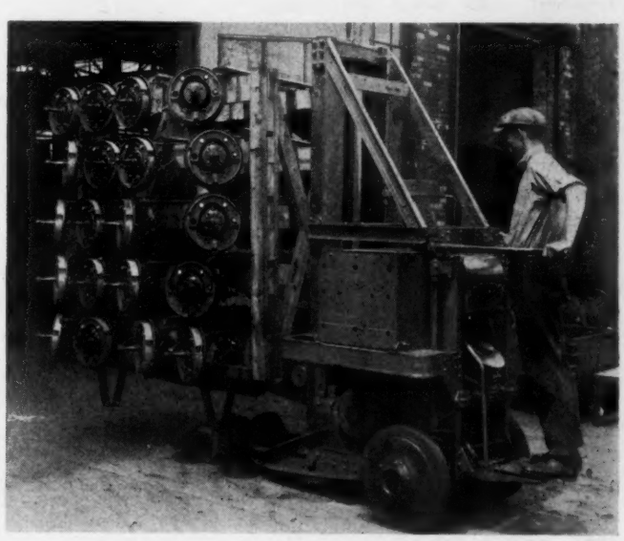


Fig. 2 (Left)—Storing pig lead with a crane truck. This short-boomed crane truck is adapted from the high-lift platform. Loads of 3000 pounds are handled by one man. Fig. 3 (Right)—A special skid rack for brake drum assemblies. The drums are shipped on the racks and handled by electric trucks at both ends of the shipment

In the case of hand trucks, hand lift trucks and hand movement, the reasons advanced for their use dealt with the conditions within the plant; "the aisles were narrow," "the doorways were small," "the floors were in bad shape," "the work was intermittent," etc. The inference is that this equipment was used because conditions compelled its use and not because the management wanted to use it. This became particularly apparent when the answers were recorded for the use of electric trucks, conveyors and other types of mechanical equipment.

The many owners of this equipment gave answers which were based on the characteristics of the equipment itself—"speed," "low cost," "low maintenance," "flexibility," "an aid to production." These were answers from men who had studied their materials handling problems, had chosen the proper equipment and were satisfied with their choice. If there had been obstacles to overcome in the installation of mechanical handling equipment, these obstacles had been surmounted and the necessary money for changes had been wisely invested.

Improvement in materials handling is essentially a matter of investment, generally an investment yielding 50 to 100 per cent a year. The net yield, of course, is the gross savings less the fixed and operating charges on the equipment. In the consideration of electric industrial trucks, the costs can be determined accurately in advance from proven records of trucks in service. The saving in direct manpower can be determined fairly accurately in advance, but there may be many indirect opportunities for savings which are not apparent until after the equipment has been placed in service. Let us first look at the records of cost in operating this type of equipment.

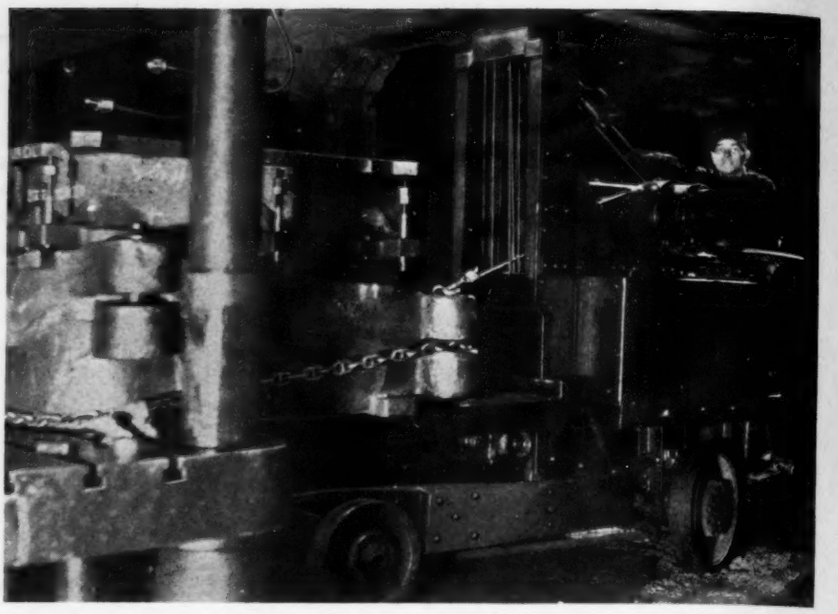


Fig. 5—Die handling in close quarters. The die is moved on and off the truck platform by an electric winch located on top of the battery box

These costs naturally divide themselves into two classes: Fixed charges, including depreciation, taxes, insurance and interest; and operating charges, made up of power for charging, oil, grease, repair parts and labor. The amount of use affects the operating costs, but the fixed charges remain practically a constant. Industrial trucks have comparatively high fixed charges and very low operating costs. Average yearly costs for approximately 100 plants are as follows:

Truck depreciation	$ 200
Battery depreciation	150
Charging equipment	25
Interest, insurance, etc.	175
Power—7500 kilowatt-hours at 3.00c	225
Oil, grease and maintenance	50
Repairs, labor and material	200
Total	$1025

This total is equal to the wages of one man. Therefore, if the work performed by three men can be done by one man and a truck, the saving will be approximately 50 cents per hour or $1200 per year in excess of 6 per cent interest on the investment which has been included in the cost. At this rate, the entire investment could be written off in two years at the most.

Operating costs vary widely with plant conditions and the following records illustrate this variation. A foundry with 24 trucks found the average yearly costs per truck to be as follows:

Truck depreciation	$ 135
Battery depreciation	97
Charging equipment	15
Interest, taxes, etc.	119
Power a 1.00c per kilowatt-hour	50
Repair and maintenance labor	81
Repair and maintenance material	138
Oil and grease	6
Total	$ 641

At another metalworking plant, power was produced as a by-product of the main operation and its influence is seen in the following costs:

Power	$ 36
Labor and repairs	300
Truck depreciation	180
Battery depreciation	192
Annual equipment cost	$ 708

Interest was omitted due to the fact that the original investment was

Fig. 4—An articulated truck for handling 10-ton bundles of steel. The platform tilts so that the bundle may be drawn up by winch from the car floor

Proportion of Metalworking Plants Using Various Types of Handling Equipment

	Automotive Per cent	Foundry Per cent	Iron and Steel Per cent	Metal Products Per cent	Machinery Per cent
Hand trucks	90	100	90	79	92
Hand lift trucks	77	35	....	47	36
Gas trucks	4	10	10	....	....
Gas lift trucks	4	10	....	....	....
Gas tractors	23	15	65	5	12
Electric load trucks	9	5	50	5	24
Electric low-lift trucks	45	25	30	11	12
Electric high-lift trucks	23	10	10	5	4
Electric cranes	9	10	15	....	12
Electric tractors	14	10	25	5	8
Industrial railway	23	55	95	5	52
Monorails	55	65	80	26	52
Overhead cranes	50	70	95	58	88
Tramrails	5	5	70	5	16
Gravity conveyors	18	15	25	16	12
Belt conveyors	36	20	30	11	8
Other conveyors	36	35	80	11	24
Hand movements	18	50	10	26	28
Other equipment	31	20	5	26	20
Electric industrial trucks (of any type)	50	40	70	40	26

paid back in the first two months of operation.

At the plant of the Ames Mfg. Co., Jersey City, N. J., six-year old trucks carry bundled scrap from the sorting and weighing operation to the furnaces. The trucks are 6000-pound capacity but average loads run from 8500 to 11,500 pounds, floor conditions are bad with heavy ramps and the floor of steel sheet with rough edges is covered with small pieces of scrap steel. The trucks are kept on 24-hour service in this operation and yet with these conditions and constant overloads of 50 to 100 per cent the plant engineer stated that repairs and maintenance excepting tires ran about $100 per year per truck for equipment six years old.

A summary of a profitable investment in industrial trucks comes from a plant involving principally foundry operations:

New truck equipment	$22,000
Improvements and plant changes	$ 5,000
Labor before using trucks	$99,716
Labor after using trucks	$32,242
Maintenance and depreciation of equipment (20 per cent)	$ 5,400
Net annual savings	$62,074
Yearly per cent return on investment	229%

Operating costs are dependent on many factors other than the characteristics of the equipment itself. The same identical machine will show very different costs when operating under a different set of conditions. Certain factors will influence only the cost per ton handled, but bad floors, heavy ramps, constant overloading will sooner or later show up in the cost per truck per day. It is not uncommon in the case of a comparatively small investment for the improvement of operating conditions to double the amount of useful work a truck can do to say nothing of insuring longer life and few repair parts.

Cost per ton moved or per ton of finished product is the final basis of comparison and in making such a comparison the following factors should be considered:

1. Length of haul.
2. Amount of material to be handled.
3. Condition of floors and runways.
4. Number and severity of ramps.
5. Continuity of the handling operation.
6. Breakability of goods handled.
7. Local labor conditions.
8. Range of uses for which the equipment may be employed.

Direct labor costs are easy to measure and these savings are large and self evident, but it is wise to consider other places where savings may be effected and which become apparent only after the truck is put in operation. Examples of these indirect savings illustrate the importance of giving them due consideration.

A foundry installed trucks to handle cores—a special spring suspended rack was used and core breakage was reduced so that the saving in broken cores paid for the truck in five months. This was irrespective of the fact that the man-hours for the handling job were reduced from 72 to 10.

A most interesting example of savings was effected in a tin plate mill of the Jones & Laughlin Steel Corp., Pittsburgh. Operating conditions seldom are ideal in a tin plate mill to carry off the steam and fumes from the tinning machines. To do this, partitions were built above the machines. These partitions took care of the ventilation adequately, but before they were installed a new method had to be devised for handling the bosch tanks formerly transferred by overhead crane from the pickling

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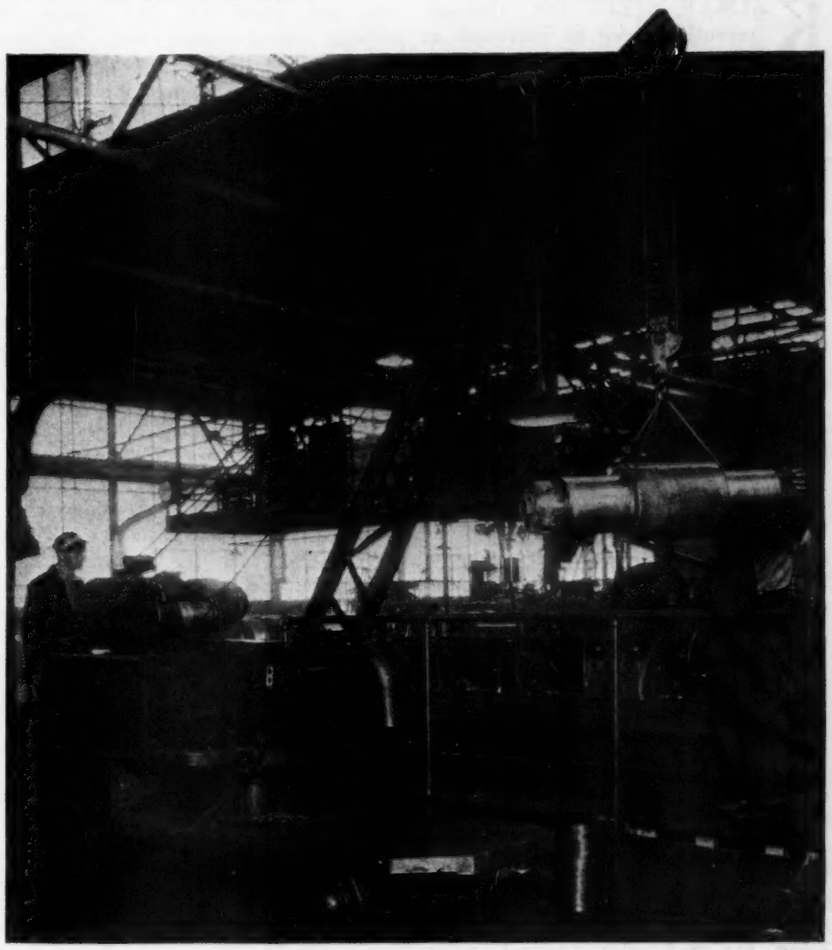
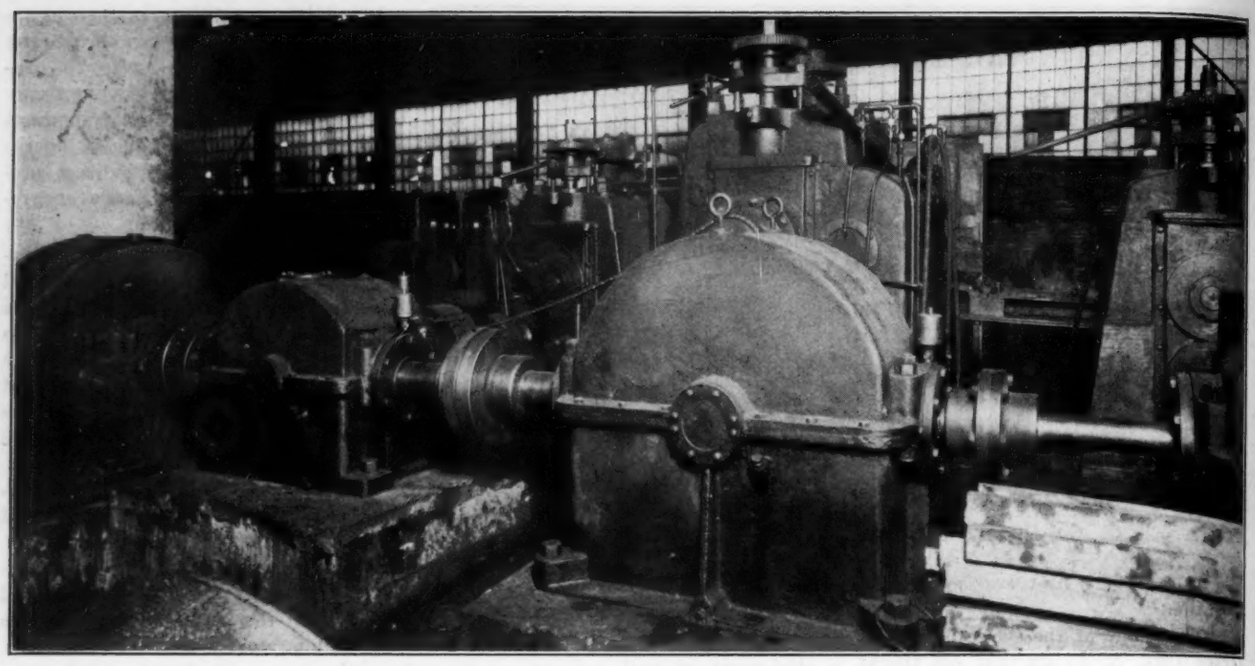


Fig. 6—A crane truck handling rolls in a steel mill



Drive side of mill showing the combination of bevel and back gears. Accessory equipment is driven by chain and gears from the work rolls

Slitting Mill Has Overhanging Rolls

KALMAN STEEL CO., Chicago, recently placed in operation at its Buffalo plant a continuous mill for slitting small I-sections in the hot state. The cut sections later are fabricated into light trussed joist for building construction. The mill was designed and built by the Farrel-Birmingham Co., Buffalo, and includes three stands, with accessories including an approach table, pinch rolls, delivery rolls, and a runout table. The mill is driven by a General Electric Co. 300 horsepower induction motor with adjustable speed control.

One of the interesting features is the method of drive, no pinion stands being included in the installation. The three work stands are driven directly through a combination of bevel and back gears, and the accessory equipment by chain and gear drives from the work rolls. All roll necks, and gear shafts are equipped with Timken bearings.

The entry stand pinches the beam and delivers it to the slitting rolls. The second stand operates the slitting rolls which form the strands in the finished beam, and the third stand operates the finishing rolls and delivers the joist to the hot bed. The drive of all three stands is carried from the motor through a 20-inch single reduction unit and three bevel gear units, one for each stand, all shafts being equipped with tapered roller bearings. Since the distance between the last stand and the middle, or slitting stand varies with the size of the joist to be rolled, provision has been made for moving both the last stand and its bevel gear drive on rails.

The design of the three housings is the same, except that the slitting housing is 50 per cent larger than the entry and delivery housings. An outboard stand has been provided for the delivery housing because of the wide rolls used in it. The back gear arrangement for driving the work rolls in the stands has eliminated separate pinion stands and the usual spindle and wabbler construction.

Size of Rolls Vary

This construction was adopted because it is necessary to use rolls of different sizes in the stands; for example, on the slitting stand the roll sizes vary between limits of 15 inches minimum and 22½ inches maximum. The back gear design has been worked out so that the vertical window can be used for the roll spindle bearings. While the back lash between the back gears and the roll spindle gears varies with the relative position of the back gear shafts and the roll spindle shafts, the total range of variation is between 0.010-inch minimum and 0.040-inch maximum; a variation which it is claimed, cannot cause trouble.

Back gear shafts and the work roll shafts in all the stands are mounted in Timken bearings. In the case of all but the straightening and finishing stands the work rolls are overhung, being keyed to an extension of the roll shaft which projects beyond the housing. This construction was adopted to facilitate the replacement of the rolls. The length of the straightening and finishing rolls makes it necessary to support them at both ends; consequently, the former are equipped with outboard bearings, and the latter are carried by two bearing supports.

Back gear shafts have a single bearing at each end, the bearings being mounted directly in upright members forming part of the stand frame. Access for inspection purposes is obtained through holes in the outer housing, which normally are covered by circular plates securely bolted to the housing. The roll spindles have a double bearing mounting at each end, the bearings being mounted in removable blocks of special design. The block proper consists of a solid steel casting, machined for the reception of the bearing cups, or outer races, which are pressed directly into it. The cone assemblies then are inserted, and the whole slipped upon the roll spindle as a unit, the bearings being definitely located by a shoulder on the outer block housing. This construction adds to the ease with which the rolls can

be changed. Bearings are used of capacities adequate to carry the excessive thrusts caused by the overhang of the rolls. In the case of the slitting rolls, special large, double bearings are used on the end of the spindle nearest the rolls themselves.

The lubrication of both gear and roll spindle bearings is accomplished by a circulating oil system, the pump supplying the pressure being driven from one of the working roll shafts by a chain. The bearing closures on the side of the stands, away from the rolls, are comparatively simple in the case of both the gear and roll shafts. On the roll side, closures of a somewhat more elaborate construction have been provided to seal the bearings against the entrance of water or scale. What water does get in is removed in the oil reclaiming and filtering apparatus that forms part of the lubricating system.

The pinch rolls and approach table at one end, and the delivery rolls and run-out table at the other, are chain and sprocket driven from the shafts connecting the bevel and back gears of the entry and finishing stands respectively. In the case of the latter, a sprocket wheel is mounted on the unit driving shaft, between the gear and the coupling. The chain runs from this sprocket over another on a shaft extending across the mill, which terminates in a spur gear, or pinion. This pinion forms part of a train of three, mounted vertically, the other two being on the ends of the delivery roll shaft extensions. Much of the same arrangement is provided for driving the pinch rolls from the entry stand drive shaft. As a result all parts of the mill run at any predetermined relative speed, which speeds are all functions of the driving motor speed.

Mexican Rebels Boost Demand for Steel

RUSH orders for railroad track material have been placed in the United States by Mexican railroad systems as a result of damage done by rebels in the recent Mexican revolt.

Railroad damage is estimated at $5,000,000, chiefly to tracks. Fully 100 miles of line have been put out of commission, and repair work shortly exhausted available supplies in Mexico. The National Railways of Mexico and the Southern Pacific of Mexico have been the biggest losers.

So thorough are railroad wreckers during Mexican revolts that it is impossible to straighten the rails and use them again. The method of the wreckers is as simple as it is effective. A steel hawser is wrapped around a tie in the center of the section of track to be dealt with, and then attached to a locomotive. As the engine proceeds the rails are rolled up and twisted corkscrew style.

The ties in these piles are set afire and the flames complete the destruction of the rails. Thus, steel rails that cost on the average of $45 a ton are reduced to a junk market value of from $2 to $3 a ton.

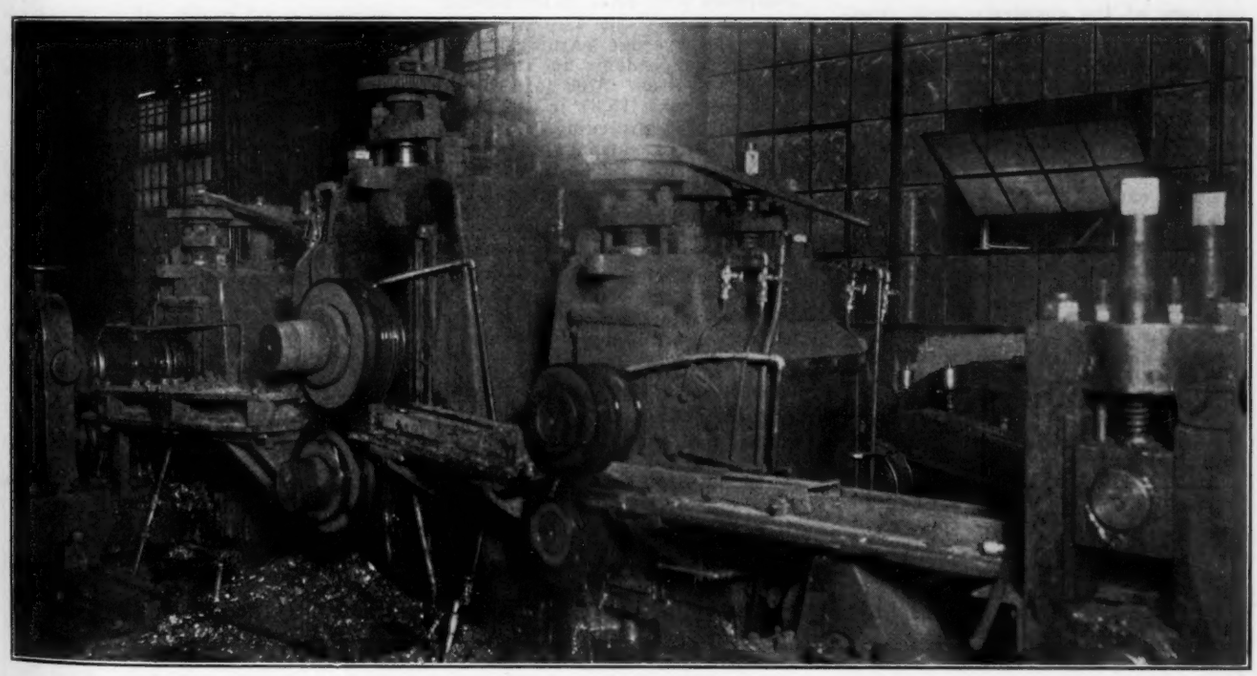
Coke Output Declines in February

Production of by-product coke in February was 4,089,710 net tons and of beehive coke 440,200 tons, a total of 4,529,910 tons, according to the federal bureau of mines. This compares with 4,360,194 tons of by-product coke in January and 3,723,147 tons last February; with 479,100 tons of beehive coke in January and 390,300 tons last February.

In February by-product coke ovens consumed 6,035,000 net tons of coal and beehive ovens 685,000 tons. By-product coke was 90.3 per cent of the total coke production in February, contrasted with 90.1 per cent in January and 90.5 per cent in February, 1928.

Canadian production in January was 220,798 tons and with imports of 99,929 tons made Canadian apparent consumption in January 319,274 tons. This compares with 314,045 tons in December and 294,440 tons last January.

The annual damage done by coal smoke in the United States is estimated at two billion dollars.



Working side of mill showing the overhung construction. The last stand is provided with outboard bearings to handle long delivery rolls

Large Volumes, Efficiency Aid To Steel Profits During 1928

Analysis of Statements of 22 Companies Shows Return of 6.55 Per Cent on Capitalization

By John W. Hill

Financial Editor, Iron Trade Review

NINETEEN TWENTY-EIGHT brought a decided turn for the better in operating results in the iron and steel industry. During the year the prolonged decline of prices was checked, while volumes mounted to unprecedented levels. The production of steel ingots represented an increase of nearly 15 per cent over that for 1927. Earnings of leading steel companies increased over 26 per cent in the aggregate. In addition to larger outputs this increase was a reflection of two other important factors, steadier prices and greater efficiency.

For the year the average return upon capitalization of representative companies was 6.55 per cent. This revealed a sharp recovery from the showing for 1927. In that year the average return upon capitalization was 5.22 per cent. In 1926 it was 6.86 per cent and in 1925 it was 5.61 per cent. The average for the last four years is 6.06 per cent.

Thus it is seen that despite the fact that 1928 was a year of unexampled demand and consumption of iron and steel the return upon capital invested in the industry continues relatively low. It is far smaller than the return on the capital invested in many other important lines, the average for industry in general being computed at about 10 per cent.

The profits picture of the iron and steel industry is shown in an analysis by IRON TRADE REVIEW of the financial statement of 22 leading producers. The results are presented in the accompanying supplement.

Represent 85 Per Cent of Ingot Capacity

INCLUDED in the list of companies are those with an annual ingot capacity of 49,762,050 tons, or 85 per cent of the country's ingot capacity. These companies had combined common stock issues outstanding of $1,352,668,764 at the close of 1927, combined preferred stock issues of $670,450,983, funded debts of $932,280,275, surplus of $1,060,615,517, and aggregate capitalization of $4,016,015,539.

The compiliation of the financial statements of the companies reveals the following facts:

1. In 1928 the 22 companies included in the list earned $6.55 for each $100 of invested capital, an increase of 25 per cent over the average return of $5.22 for these same companies in 1927.

2. The earning return of the United States Steel Corp. in 1928 was $6.42 for each $100 of capital compared with $5.17 in the preceding year.

3. The average earning return for 21 independents in 1928 was $6.70 for each $100 of capital compared with $5.37 in 1927, and $7.13 in the preceding year.

4. The net earnings of the 22 companies in 1928, before dividends and bond interest was $262,968,153 compared with $207,360,040 in 1927, and $264,620,597 for these same companies in 1926.

5. Practically all companies showed an important increase in current assets reflecting, in part at least, large gains in cash resources.

Impressive gains were made by many companies included in the compilation, increases in net earnings before dividends ranging from around 20 per cent to more than 150 per cent compared with one year before. The increase in net profits, after all charges before dividends, for the United States Steel Corp. in 1928 was 31 per cent. Bethlehem Steel Corp. gained 17 per cent; Youngstown Sheet & Tube Co. gained 48 per cent; Jones & Laughlin Steel Corp., 38 per cent; Inland Steel Co., 37 per cent; Republic Iron & Steel Co., 52 per cent; Otis Steel Co., 143 per cent; Central Alloy Steel Corp., 80 per cent; American Rolling Mill Co., 70 per cent; Wheeling Steel Corp., 60 per cent; Interstate Iron & Steel Co., 150 per cent; and the Ludlum Steel Co., 160 per cent.

The improvement thus shown would seem to indicate that a genuine turn

¶ This is Iron Trade Review's fourth annual analysis of earnings of leading iron and steel producing companies. This analysis reveals that despite great activity in the iron and steel industry during the past year the net return on invested capital still is relatively small.

Earnings, Capitalization, Assets of Leading Steel Companie

NAME OF COMPANY	No. Shares Common Stock Outstanding Dec. 31, 1927	Common Stock Dec. 31, 1927	Preferred Stock Dec. 31, 1927	Funded Debt Dec. 31, 1927	Surplus Dec. 31, 1927	Total Capitalization Dec. 31, 1927	Net Earnings before Dividends 1928-1927	Total Earnings before Div. and Int. on Bonds 1928-1927	Earnings per Share Common 1928-1927	Per Cent Earnings on Capitalization 1928-1927	Earnings Per Ton Ingot Capacity 1928-1927	Rated Ingot Capaci
United States Steel Corp.....	7,116,235 par 100	$711,623,500	$360,281,100	$475,174,528	$633,044,913	$2,180,124,041	*$114,173,774 **87,845,456	*$139,919,781 **112,011,265	*$12.47 **8.80	*$6.42 **5.17	*$5.95 **4.79	23,495,10
Bethlehem Steel Corp.....	1,800,000 par 100	180,000,000	97,000,000	204,169,447	124,319,230	605,488,677	*18,585,922 **15,826,142	*29,862,801 **27,282,403	*6.52 **5.02	*4.93 **4.54	*3.73 **3.45	8,000,00
Youngstown Sheet & Tube Co	987,606 no par	75,000,000	14,241,100	75,000,000	37,197,610	201,4 8710	*10,446,336 **7,023,334	*14,268,053 **11,121,639	*9.53 **6.10	*7.08 **5.59	*4.39 **3.42	3,247,20
Jones & Laughlin Steel Corp...	573,320 par 100	57,332,000	58,331,800	12,982,000	53,413,072	182,058,872	*15,568,687 **11,238,939	*16,210,425 **11,986,960	*20.00 **12.49	*8.90 **6.68	*5.40 **3.98	3,000,00
Inland Steel Co.....	1,182,799 no par	45,000,000	10,000,000	12,150,000	25,269,632	92,419,632	*9,334,297 **6,806,894	*10,569,047 **7,581,802	*7.63 **5.16	*11.44 **9.55	*6.61 **4.68	1,600,00
Republic Iron & Steel Co.....	300,000 par 100	30,000,000	25,000,000	18,697,000	34,904,445	108,601,445	*4,642,450 **3,018,282	*6,301,759 **4,061,272	*4.28 **4.20	*5.83 **3.72	*3.56 **3.12	1,800,00
Central Alloy Steel Corp.....	1,296,371 par $5.00	6,481,855	10,000,000	4,342,000	45,897,615	66,721,470	*4,903,340 **2,725,656	*5,289,016 **3,151,595	*3.24 **1.56	*7.93 **4.68	*3.78 **2.25	1,400,00
Wheeling Steel Corp.....	700,000 par 100	39,483,700	27,529,800	24,782,500	11,040,063	102,836,063	*6,443,739 **4,028,916	*8,269,743 **5,553,902	*5.41 **2.97	*8.04 **5.40	*6.50 **4.36	1,273,00
Colorado Fuel & Iron Co.....	342,355 par 100	34,235,500	2,000,000	33,299,000	3,839,059	73,373,559	*1,010,919 **2,577,518	*2,726,516 **4,293,115	*2.50 **7.12	*3.71 **5.97	*2.25 **3.55	1,208,00
Crucible Steel Co. of America	550,000 par 100	55,000,000	25,000,000	4,500,000	26,555,525	111,055,525	*5,634,417 **5,617,144	*5,849,000 **5,844,227	*7.06 **7.03	*5.27 **5.27	*5.83 **5.82	1,003,7
American Rolling Mill Co.....	1,144,363 par 25	28,609,991	5,088,400	27,500,000	19,311,382	80,509,773	*6,675,034 **3,748,564	*8,105,144 **4,189,116	*5.56 **2.98	*10.07 **7.76	*8.38 **4.33	467,00
Otis Steel Co.....	741,802 par $5.00	3,907,010	11,759,283	12,000,000	7,705,500	35,371,793	*3,370,982 **1,382,879	*4,139,757 **2,168,293	*3.15‡ **0.75	*11.70 **6.47	*4.65 **6.28	890,00
Pittsburgh Steel Co.†.....	253,500 par 100	25,350,000	10,475,000	5,047,800	9,588,626	50,461,426	*1,342,141 **1,951,957	*1,858,812 **2,234,917	*2.40 **4.81	*3.68 **4.45	*3.10 **3.72	600,00
Donner Steel Co	451,850 no par	2,108,520	3,411,400	6,745,000	9,497,603	21,762,523	*1,343,272 **372,193	*1,799,472 **841,193	*2.38 **None	*8.27 **3.68	*3.33 **1.56	540,00
Sharon Steel Hoop Co.....	286,240 par 50	14,337,000	999,700	3,462,000	2,664,614	21,463,314	*971,853 **555,518	*1,230,170 **867,460	*3.11 **1.65	*5.73 **4.54	*3.42 **2.41	360,00
Interstate Iron & Steel Co.....	40,000 par 100	4,000,000	1,224,600	5,300,000	4,486,586	15,011,186	*1,023,868 **409,783	*1,333,917 **640,224	*20.80 **8.00	*8.89 **4.74	*3.99 **2.56	334,00
Gulf States Steel Co.....	125,000 par 100	12,500,000	2,000,000	3,875,000	2,703,475	21,078,475	*924,745 **756,402	*1,154,922 **786,402	*6.28 **4.93	*5.48 **4.33	*3.85 **2.62	300,00
Midvale Co.....	200,000 no par	14,574,621	None	None	1,986,206	16,560,827	*981,292 **803,029	*981,292 **803,029	*4.90 **4.01	*5.90 **5.09	*4.42 *3.61	222,00
Ludlum Steel Co.....	135,000 no par	1,738,164	None	1,088,000	1,802,461	4,628,625	*586,610 **225,436	*671,600 **301,770	*4.34 **1.67	*14.51 **6.25	*30.52 *13.72	22,0
Superior Steel Corp.....	100,000 par 100	4,154,223	None	2,166,000	569,578	6,889,801	*29,353 **189,847 loss	*149,313 **59,887 loss	*.29 **None	*2.17 **None	None None	N
A. M. Byers Co.¶.....	199,340 no par	4,222,680	6,108,800	None	3,375,044	13,706,524	*1,577,513 **1,377,237	*1,577,513 **1,413,215	*5.76 **6.58	*11.51 **9.89	None None	N
Eastern Rolling Mill Co.....	239,200 no par	3,010,000	None	None	1,443,278	4,453,278	*700,100 **286,128	*700,100 **286,128	*2.92 **1.30	*15.70 **6.20	None None	N
Total.....		$1,352,668,764	$670,450,983	$932,280,275	$1,060,615,517	$4,016,015,539	*$210,270,644 **$158,387,560	*$262,968,153 **$207,360,040		*$6.55 **5.22	$5.20	49,762,

* 1928
** 1927
‡ Based on 807,002 shares outstanding Dec. 31, 1928
† Fiscal year ends June 30
¶ Fiscal year ends Sept. 30
*** $2 in cash and 5 per cent in stock

, Assets and Capacity
ompanies in 1928

Earnings per Share Common 1928-1927	Per Cent Earnings on Capitalization 1928-1927	Earnings Per Ton Ingot Capacity 1928-1927	Rated Ingot Capacity	Capitalization Per Ton Ingot Capacity	Dividend Rate Common Shares	Total Assets Dec. 31, 1928	Current Assets Dec. 31, 1928	Current Liabilities Dec. 31, 1928	NAME OF COMPANY
*12.47 **8.80	*$6.42 **5.17	*$5.95 **4.79	23,495,100	$92.79	$7	$2,442,030,233	$569,155,190	$112,515,979	.....United States Steel Corp.
*6.52 **5.02	*4.93 **4.54	*3.73 **3.45	8,000,000	75.68	4	643,356,206	168,932,293	33,472,945	.....Bethlehem Steel Corp.
*9.53 **6.10	*7.08 **5.59	*4.39 **3.42	3,247,200	62.03	5	221,748,293	84,358,952	11,674,630	Youngstown Sheet & Tube Co.
20.00 12.49	*8.90 **6.68	*5.40 **3.98	3,000,000	69.00	6	209,908,130	77,118,037	10,171,499	..Jones & Laughlin Steel Corp.
*7.63 **5.16	*11.44 **9.55	*6.61 **4.68	1,600,000	57.76	2.50	96,305,000	35,300 000	4,650,000	.....Inland Steel Co.
*4.28 **4.20	*5.83 **3.72	*3.56 **3.12	1,800,000	60.33	4	151,434,763	27,419,150	5,905,820	.....Republic Iron & Steel Co.
*3.24 **1.56	*7.93 **4.68	*3.78 **2.25	1,400,000	48.00	2	75,259,103	25,560,785	5,702,804	.....Central Alloy Steel Corp.
*5.41 **2.97	*8.04 **5.40	*6.50 **4.36	1,273,000	80.78	None	125,098,411	47,273,692	7,524,165	.....Wheeling Steel Corp.
*2.50 **7.12	*3.71 **5.97	*2.25 **3.55	1,208,000	60.70	None	80,076,385	16,245,092	6,136,291	.....Colorado Fuel & Iron Co.
*7.06 **7.03	*5.27 **5.27	*5.83 **5.82	1,003,750	110.64	5	118,385,021	32,784,979	6,582,529	Crucible Steel Co. of America
*5.56 **2.98	*10.07 **7.76	*8.38 **4.33	467,000	83.25	7***	120,738,096	28,718,687	6,769,342	....American Rolling Mill Co.
*3.15‡ **0.75	*11.70 **6.47	*4.65 **6.28	890,000	39.74	None	41,633,620	11,910,732	3,339,966	.....Otis Steel Co.
*2.40 **4.81	*3.68 **4.45	*3.10 **3.72	600,000	84.10	None	75,391,997	17,278,938	1,929,442	.....†Pittsburgh Steel Co.
*2.38 None	*8.27 **3.68	*3.33 **1.56	540,000	40.30	None	31,815,059	6,899,181	1,693,000	.....Donner Steel Co.
*3.11 **1.65	*5.73 **4.54	*3.42 **2.41	360,000	59.62	1	27,305,937	7,414,802	1,837,539	.....Sharon Steel Hoop Co.
*0.80 **8.00	*8.89 **4.74	*3.99 **2.56	334,000	44.94	4	17,029,214	5,167,434	1,360,490	....Interstate Iron & Steel Co.
*6.28 **4.93	*5.48 **4.33	*3.85 **2.62	300,000	70.26	4	25,382,872	5,555,976	853,289	.....Gulf States Steel Co.
*4.90 **4.01	*5.90 **5.09	*4.42 *3.61	222,000	74.60	2.25	16,838,525	7,224,738	262,301	.....Midvale Co.
*4.34 **1.67	*14.51 **6.25	*30.52 *13.72	22,000	210.39	2	5,274,655	2,409,901	375,385	.....Ludlum Steel Co.
*.29 *None	*2.17 **None	None None	None	None	None	7,010,666	2,485,965	240,343	.....Superior Steel Corp.
*5.76 **6.58	*11.51 **9.89	None None	None	None	None	18,348,756	9,749,809	758,000	.....¶A. M. Byers Co.
*2.92 **1.30	*15.70 **6.20	None None	None	None	1.50	6,810,271	3,012,708	465,893	.....Eastern Rolling Mill Co.
	*$6.55 **5.22	$5.20	49,762,050	$80		$4,557,181,223	$1,182,976,541	$224,221,623	.....Total

* 1928
** 1927
‡ Based on 807,002 shares outstanding Dec. 31, 1928
† Fiscal year ends June 30
¶ Fiscal year ends Sept. 30
*** $2 in cash and 5 per cent in stock

in the earning power of the iron and steel industry had appeared. Certainly during the first quarter of the current year the impetus of betterment of 1928 has gathered increasing force. Large volumes have played an important part in bringing about the changed condition with respect to steel company earnings. Price stability also has been a factor. But of greater fundamental significance is the factor of higher operating efficiency.

A number of companies only recently have completed programs of betterment and of rounding out and modernizing their plants. In some cases also the benefit of mergers and consolidations brought about in the interest of efficiency and greater economies, became apparent in 1928.

Earnings on Capital Increase

As in the preceding year the earnings of independent steel companies on capital were higher than were those of the United States Steel Corp. The corporation earned $6.42 for each $100 of its capitalization, while the average return for 21 independents during the year amounted to $6.70 for each $100 of aggregate capitalization. This was a spread of 28c in favor of the independents. In 1927 there was a spread of only 20c for each $100 in capital in favor of the independent. Apparently, some of the smaller companies have made even greater progress in achieving a high degree of operating efficiency than has the corporation. However, the leading interest has not been idle in this respect, as is indicated by the following passage from the annual report of the corporation for 1928:

"While the operation of properties show a fair, but not fully commensurate, profit return on the investment employed, these results are due largely to the foresight in devoting a liberal portion of surplus and reserves to improving and establishing the plant and facilities on a more efficient basis of operation. Thus there has been made possible savings in production costs and in that way counteracting substantially the effect upon earnings of the downward trend of selling prices. The reasonable prices charged for iron and steel products undoubtedly have stimulated consumption to a material extent, thereby enabling the plant to maintain satisfactory operations. In this the public is well served."

Average prices of iron and steel products, as measured by IRON TRADE REVIEW'S composite market average, declined 7 per cent in 1927. They fell 15 per cent over the years of 1925, 1926 and 1927. In 1928 this extended recession was arrested, but not until around the middle of the year. Then there was some recovery followed by a display of underlying strength which has persisted through the first three months of 1929. The current price level shows a recovery of about 4 per cent from the low point of last year.

The advance of prices since the summer of 1928 was too gentle greatly to affect steel company profits. Nevertheless the appearance of long-delayed price stability and steadiness, coupled with extraordinary volumes made better earnings possible. Producers were enabled to reap some of the benefits from improved operating conditions.

With two exceptions all of the companies included in the list show gains in earnings over 1927. These exceptions are the Colorado Steel & Iron Co. and the Pittsburgh Steel Co. The latter's fiscal year ended June 30 so that its statement of earnings is not strictly comparable with other companies in the compilation, most of whose fiscal years ended Dec. 31.

Among the individual companies there were marked variations from the average return of 6.55 per cent on the invested capital. Curiously enough the smallest company in the list of 22, showed the largest return upon its capital. This was the Eastern Rolling Mill Co. with capitalization of $4,453,278 at the close of 1927 and earnings of $700,100 in 1928, and a return of 15.70 per cent.

Earns High Return

Another relatively small company, the Ludlum Steel Co., showed a high return upon capital, the figure being 14.51 per cent, with total capital of $4,628,625 and earnings before dividends and interest of $671,600.

The Inland Steel Co. and the American Rolling Mill Co. also had much larger than average returns upon their capitalization. That for the Inland Steel Co., was 11.44 per cent, while that for the American Rolling Mill Co. was 10.07 per cent.

The Bethlehem Steel Corp. with a return upon capital of 4.93 per cent shows improvement over the 4.54 per cent reported in 1927. This is one of the important signs that Bethlehem is emerging from its long period of low earnings, pending completion and consolidation of its large program of improvements.

Notable improvement in the return upon capital was shown for the Central Alloy Steel Corp. the figure being 7.93 per cent in 1928 against 4.68 per cent in 1927. This company now evidently is deriving the benefits from the completion of the reorganization and adjustments incident to its formation through the combination of the Central Steel Co. and the United Alloy Steel Corp. in 1926.

Earnings per share on the common stocks of the various companies made a more favorable showing in 1928 than in the previous year. The United States Steel Corp. showed a return of $12.47 a share on its common stock, compared with $8.80 a share one year ago. Of the large independents the earning of $20 a share on its 573,320 shares of common stock reported by the Jones & Laughlin Steel Corp. was the most impressive. This compared with $12.49 a share earned in 1927. The Interstate Iron & Steel Co. earned $20.80 a share on 40,000 shares of common stock, compared with $8 a share one year before. The Otis Steel Co., which earned 75.00c a share on its common stock in 1927 reported earnings at the rate of $3.15 a share on its common stock in 1928.

Ingot Capacity Enlarged

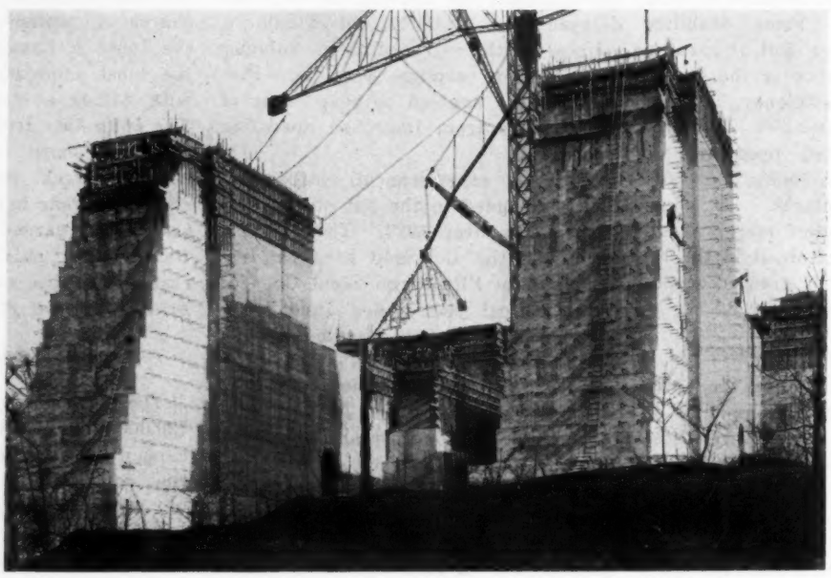
The year brought an increase of 729,000 tons in the aggregate ingot capacity of the companies included in the compilation. Earnings per ton of ingot capacity for the nineteen companies in the compilation making ingots average $5.20 a ton.

A notable feature of the analysis of financial statements of the industry is found in the large increase during 1928 for current assets. The total of current assets of all companies included at the close of 1928 was $1,182,976,541. This was an increase of $73,575,484 over the preceding year. At the same time current liabilities of $224,221,623 showed an increase of only $16,264,882. These figures indicate the basic improvement in the financial position that has taken place in the iron and steel industry during the past year of better earnings. In most instances the increase in current assets was due to larger holdings of cash and marketable securities, some companies reporting exceptional gains in these items.

In sum, it may be said that 1928 was a year of better earnings for the iron and steel industry and inasmuch as this reflects greater productivity and higher efficiency the improvement probably means a basic upward trend for earning power in the industry. Large volumes of output and more stable prices were heavily contributing factors to the gains last year and since these are holding in 1929 continued improvement in earnings may be expected this year. Notwithstanding this increase the return of 6.55 per cent on aggregate capitalization in the industry continues small as measured by the average return of around 10 per cent for industry in general and in view of the basic and essential character of the iron and steel trade.

Concrete Bar Consumption More Diversified in Last Half of 1928

Weekly awards reported by Iron Trade Review form basis of second semiannual analysis



Reinforced concrete anchorage for largest suspension bridge in world, over Hudson river, connecting New York and New Jersey

By Robert T. Mason

Associate Editor, Iron Trade Review

CONCRETE reinforcing bar distribution was more diversified in the last half of 1928 than in the first half, according to the second semiannual survey by IRON TRADE REVIEW. These data are computed from the weekly tabulation of concrete bar awards inaugurated by IRON TRADE REVIEW, and are revised to eliminate duplications and incorrect reports.

Illinois continued to dominate the concrete bar situation in the last half, especially in the number of jobs reported. A total of 122 contracts were listed, requiring 30,650 tons of steel, as against 112 jobs in the first half taking 52,748 tons. New York made the largest advance, moving from 12.24 per cent of the total in the first half to 17.19 per cent in the last half. New Jersey also increased its consumption considerably. Ohio, Pennsylvania and Massachusetts dropped off in their importance among the leading concrete bar consumers.

A comparison of the leading states for the first and last half follows:

	Per Cent of Total in 1928	
	July-Dec.	Jan.-June
Illinois	23.18	27.70
New York	17.19	12.24
California	12.01	9.89
Ohio	7.16	12.93
Washington	7.11	5.49
New Jersey	6.98	.....
Pennsylvania	6.46	9.07
Massachusetts	2.27	6.26
All Other States	17.64	16.42
Totals	100.00	100.00

Thirty-nine states and the District of Columbia are included in the following tabulation, showing the number of projects reported and the tonnage involved for the first and last-half periods of 1928. The largest increases were made by New York, California and Michigan, and the most marked decreases in number of contracts placed by Pennsylvania and Ohio. Further comparisons follow:

	1928			
	No. of Projects		Tonnage	
	July-Dec.	Jan.-June	July-Dec.	Jan.-June
Alabama	3	2	829	256
Arizona	....	1	.....	263
Arkansas	....	1	.....	600
California	57	43	15,890	18,838
Colorado	....	2	.....	380
Connecticut	5	6	1,280	2,400
Delaware	2	....	690	.....
Dist. of Columbia	6	2	2,055	580
Florida	2	....	1,800	.....
Georgia	....	3	.....	300
Illinois	122	112	30,650	52,748
Indiana	6	2	2,250	760
Iowa	1	3	100	1,150
Kentucky	2	....	550	.....
Louisiana	1	2	540	850
Maine	1	....	180	.....
Maryland	7	12	1,135	2,660
Massachusetts	12	18	3,005	11,935
Michigan	12	1	2,050	250
Minnesota	1	....	500	.....
Mississippi	....	3	.....	625
Missouri	14	23	3,250	4,685
Montana	1	....	156	.....
New Hampshire	....	1	.....	300
New Jersey	32	21	9,229	9,380
New York	74	55	22,732	23,320
North Carolina	1	4	275	707
Ohio	29	39	9,471	24,635
Oregon	5	6	1,858	1,302
Pennsylvania	46	72	8,538	15,375
Rhode Island	2	3	2,500	500
South Carolina	....	2	.....	420
Tennessee	2	1	231	150
Texas	2	3	800	1,975
Utah	....	1	.....	155
Vermont	....	1	.....	100
Virginia	....	2	.....	750
Washington	44	38	9,397	10,461
West Virginia	3	5	300	450
Wisconsin	....	4	.....	1,176
Totals	495	494	132,241	190,436

The clear-cut domination of Chicago in the use of concrete reinforcing bars in the residential field is shown in the table on distribution by states and uses. Of the 68 projects reported in IRON TRADE REVIEW, Illinois supplied 45 and Chicago and its suburbs accounted for most of the 45. In these classifications, commercial is used to designate lofts, office structures, bank buildings, etc.; residential includes hotels and apartments; industrial takes in warehouses, garages, factory buildings, etc.; the public buildings classification contains municipal and state buildings, hospitals, clubs, lodges, libraries, etc.; roadwork means the reinforcing of highways and grade eliminations; and bridges and piers include the miscellaneous uses of concrete bars for causeways, bulkheads, bridges, piers, docks, sewers, subways, ramps, etc.

A few of the leading concrete reinforcing bar contracts placed during the last half included 2300 tons for the Haddon Hall hotel addition at Atlantic City, N. J.; 2000 tons for a warehouse at Albany, N. Y., for Montgomery, Ward & Co.; 1800 tons for the Life Science building of University of California, Berkeley, Calif.; 1700 tons for a memorial

bridge at Providence, R. I.; 1500 tons for the U. S. Gypsum Co. plant at East Chicago, Ind.; 1400 tons for a Packard service station at New York; 1400 tons for bridge at Fort Myers, Fla.; 1100 tons for the Lehigh Valley railroad terminal, New York, and 1000 tons each for a sewer at Columbus, O.. and a reservoir at Portsmouth, O.

It should be remembered that these figures are based on IRON TRADE REVIEW'S weekly reports of concrete bar awards, which do not include projects involving less than 100 tons of reinforcing steel.

Distribution By States and Uses

State	Commercial No. Proj.	Commercial Tons	Residential No. Proj.	Residential Tons	Industrial No. Proj.	Industrial Tons	Public Bldgs. No. Proj.	Public Bldgs. Tons	Roadwork No. Proj.	Roadwork Tons	Bridges, piers No. Proj.	Bridges, piers Tons
Alabama	....	.....	....	.....	....	.....	....	.....	....	.....	3	829
California	8	2,533	10	2,420	9	2,272	7	2,980	6	1,647	17	4,038
Connecticut	3	330	....	.....	2	660	....	.....	1	300	....	.....
Delaware	....	.....	....	.....	....	.....	2	690	....	.....	....	.....
Dist. of Col.	2	435	....	.....	....	.....	4	1,620	....	.....	....	.....
Florida	....	.....	....	.....	....	.....	....	.....	....	.....	2	1,800
Illinois	11	2,970	45	12,965	28	7,580	23	4,445	11	2,090	4	600
Indiana	2	250	....	.....	3	1,700	1	300	....	.....	....	.....
Iowa	....	.....	....	.....	1	100	....	.....	....	.....	....	.....
Kentucky	....	.....	....	.....	....	.....	1	300	....	.....	1	250
Louisiana	....	.....	....	.....	....	.....	1	540	....	.....	....	.....
Maine	....	.....	....	.....	....	.....	....	.....	....	.....	1	180
Maryland	1	200	....	.....	3	365	2	450	....	.....	1	120
Massachusetts	2	330	....	.....	6	2,125	2	250	....	.....	2	300
Michigan	3	235	1	250	1	100	4	765	2	200	1	500
Minnesota	1	500	....	.....	....	.....	....	.....	....	.....	....	.....
Missouri	3	725	3	700	4	1,000	2	465	....	.....	2	360
Montana	....	.....	....	.....	....	.....	....	.....	....	.....	1	156
New Jersey	3	400	1	2,300	9	2,615	5	688	5	1,450	9	1,776
New York	14	3,905	1	100	14	6,122	19	4,485	2	280	24	7,840
North Carolina	....	.....	....	.....	....	.....	....	.....	....	.....	1	275
Ohio	4	1,300	1	300	14	3,411	3	1,040	3	1,200	4	2,220
Oregon	....	.....	....	.....	....	.....	1	400	....	.....	4	1,458
Pennsylvania	5	890	3	305	13	2,858	14	2,635	6	875	5	975
Rhode Island	....	.....	....	.....	1	800	....	.....	....	.....	1	1,700
Tennessee	1	100	....	.....	1	131	....	.....	....	.....	....	.....
Texas	1	700	....	.....	1	100	....	.....	....	.....	....	.....
Washington	7	1,125	3	590	11	2,885	6	1,440	5	600	12	2,757
West Virginia	....	.....	....	.....	....	.....	1	100	1	100	1	100
Totals	70	16,928	68	19,930	121	34,814	98	23,593	42	8,742	96	28,234

Promote Power Farming

United Tractor & Equipment Corp., Chicago, an association of 32 independent makers and distributors of tractors, farm implements and industrial equipment with combined assets of more than $125,000,000, has been founded.

The member companies will manufacture and distribute a line of agricultural machinery designed to be operated with a tractor which is in full production under contract by the Allis-Chalmers Mfg. Co., Milwaukee, a member of the corporation.

Officers of the new corporation include Milton W. Anderson, president and general manager; W. B. May of W. B. May Inc., Buffalo, vice president; E. R. Wehr, the Wehr Company, Milwaukee, secretary-treasurer and Walter Stiemke, assistant secretary-treasurer.

Annual Meet Scheduled

Announcement has been made of the third national meeting of the iron and steel division, American Society of Mechanical Engineers, at Cleveland, Sept. 11 to 13, by Warner Seeley, chairman of the Cleveland section. This meeting will be held simultaneously with the Steel Treaters' Exposition, and the program will be coordinated with programs of other metal societies. There is prospect of the iron and steel division holding a joint banquet with the American Society for Steel Treating, American Welding society and the Institute of Metals.

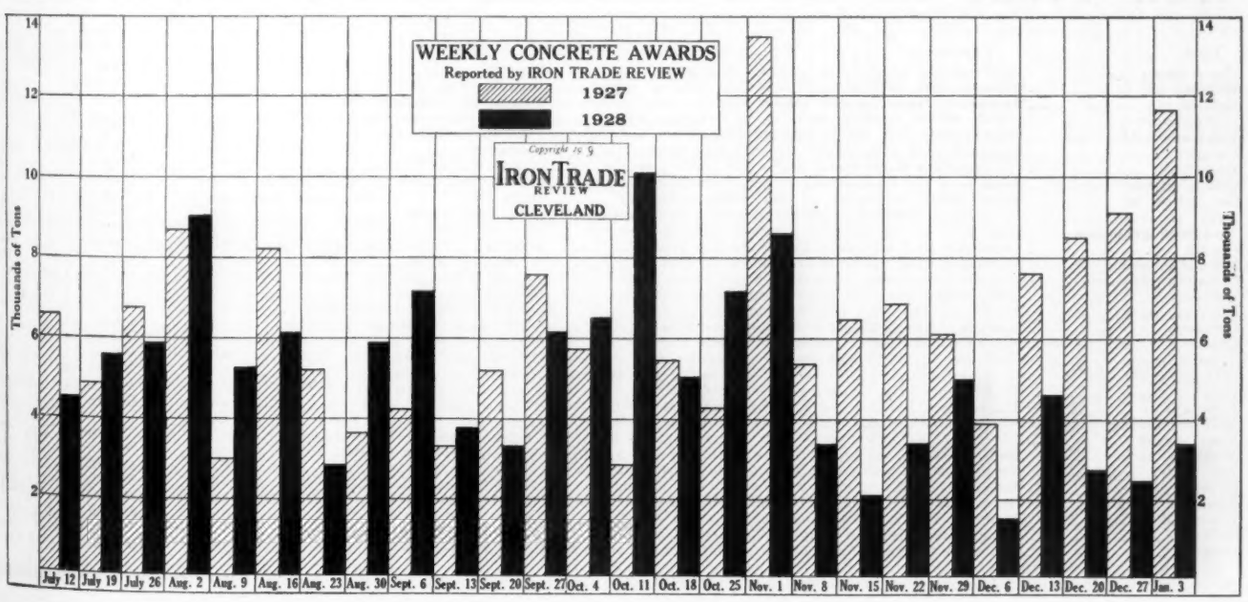
Buyers To Meet in June

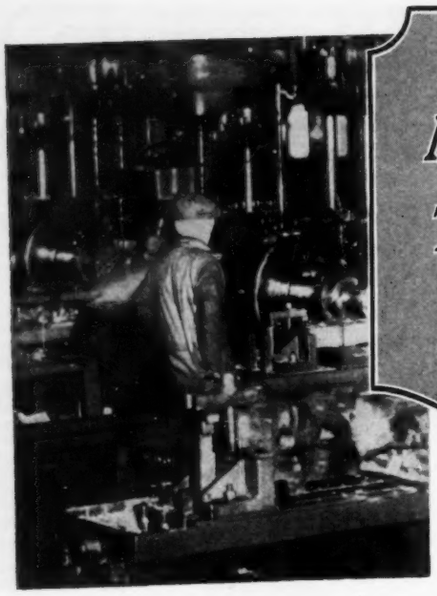
The fourteenth annual meeting of the National Association of Purchasing Agents will be held at Hotel Statler, Buffalo, June 3-6. The buyers will study commodity trends, business conditions, purchasing practices, new sources of supply, new services and new products. The program calls for several sessions and meetings for individual groups such as for buyers for public utilities, oil companies, banks, mining, smelting, etc., as well as those interested in coal, iron, steel and the major commodities. An exhibit will be held in conjunction with the convention.

Call Hardware Meeting

The eighteenth annual meeting of the metal branch of the National Hardware Association of United States will be held in Detroit, May 16-17, with headquarters at the Statler hotel. Distribution will be the chief topic.

Automobile license tags for Ohio in 1930 will require about 1200 tons of steel and 8000 gallons of enamel.





New Machine Tools and Shop Equipment

"Without tools man is nothing, with tools he is all."—Carlyle

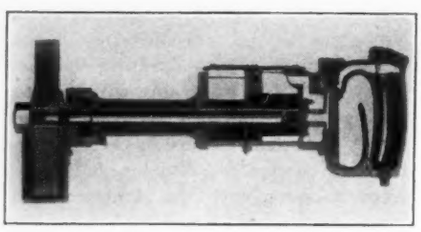
Portable Grinder Driven by Multivane Motor

No. 68

Ingersoll-Rand Co., 11 Broadway, New York, has developed a new portable pneumatic grinder which uses a multivane motor that combines the lugging power of a piston machine with the smoothness of a turbine. Speed governors are incorporated to give power where it is wanted and yet keep the grinding wheel from operating at dangerous speeds.

By means of the governor the unit can be adjusted to any desired speed up to 6300 revolutions per minute. Standard machines are set at 4200 revolutions per minute, which is the best speed for 6-inch vitrified and 8-inch bonded wheels of elastic type.

A rotor with four power vanes is used. It is made of steel, hardened and ground to reduce wear, and is a full-floating fit on its arbor. This permits the rotor to align itself between its two end plates so that no wearing pressure comes at the ends. The four power vanes balance the turning effort on the rotor giving a smooth flow of power.



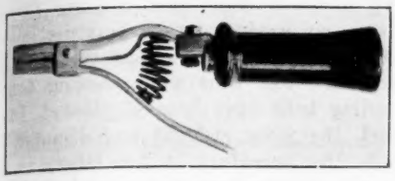
No. 68—Phantom view of pneumatic grinder with multivane motor

An exhaust deflector is used which also serves as a muffler. It baffles the exhaust air passing through it to remove the penetrating screech. In addition, the exhaust deflector can be turned to deflect the exhaust in any desired direction. The wheel end-bearing consists of two radial thrust ball bearings, placed to take thrust from either direction. Grinding on either side of the grinding wheel, therefore, will not destroy this important bearing.

In the handle of the tool is an oil chamber. From this chamber oil automatically is fed into the live air going to the machine every time the grinder is stopped and started. It

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Floor armor	Steel mat for reinforcing concrete and asphalt floors	Blaw-Knox Co.	42	Feb. 28	591
Welding rod	High-strength welding rod for bronze welding operations	Oxweld Acetylene Co.	43	Feb. 28	591
Grinder	Heavy-duty type; duplex tables may be uncoupled	Cincinnati Grinders Inc.	44	Feb. 28	592
Compressors	Eleven models ranging from ¼ to 5 horsepower	Curtis Pneumatic Machinery Co.	45	Feb. 28	593
Electrode holder	Water-cooled; for use in manual carbon arc welding	Lincoln Electric Co.	46	Feb. 28	593
Grinder	Equipped with attachment for grinding cams	Norton Co.	47	Feb. 28	593
Screwnail	For fastening sheet metal and wood; driven in	Parker-Kalon Corp.	48	March 7	651
Crank grinder	Work need not be removed to grind crankshaft pins	Landis Tool Co.	49	March 7	651
Generating set	Diesel engine connected to 40-kilowatt generator	Buda Co.	50	March 7	651
Drill	For drilling, burring or countersinking; dial plate feed	Kent Machine Co.	51	March 7	652
Acetylene generator	Used with low or medium pressure welding blowpipe	Oxweld Acetylene Co.	52	March 7	652
Clutch	Automatic and mechanical accelerating type	Worcester Polytechnic institute	53	March 7	652
Magnetic probe	To remove steel particles from flesh or eyes	V. Mueller & Co.	54	March 7	653
Grinding machine	Universal type with reversible wheel stand motor	Brown & Sharpe Mfg. Co.	55	March 7	653
Grinder	Swing frame type for foundry snagging work	Kinney Iron Works	56	March 7	653
Pouring device	Hand operated; ball bearing equipped	Modern Pouring Device Co.	57	March 7	653
Grinders	Small high-speed units; bench or floor types	Kling Bros. Engineering Works	58	March 14	719
Crane	Improved lubrication; numerous safety features	Whiting Corp.	59	March 14	719
Tractor crane	Increased flexibility and greater capacity	Otis Engine Corp.	60	March 14	720
Nut tightener	Auxiliary clutch said to prevent ratcheting and jerking	Independent Pneumatic Tool Co.	61	March 14	720
Hoist	Mounted on 5-ton truck; gasoline motor drive	American Hoist & Derrick Co.	62	March 14	720
Gear cutter	Hypoid head handles gears 60 inches in pitch diameter	Gleason Works	63	March 14	721
Milling machine	Provided with combination power and manual feeds	Kent-Owens Machine Co.	64	March 14	721
Feed pusher	For high speed handling of stock to screw machines	Eastern Machine Screw Corp.	65	March 21	793
Welding torch	Simultaneous operation of valves admitting gas and air	St. Paul Welding & Mfg. Co.	66	March 21	793
Air heater	For recovery of waste heat in stack gases to preheat air	Shaw-Perkins Co.	67	March 21	794
Grinder	Portable pneumatic type with multivane motor	Ingersoll-Rand Co.	68	March 28	858
Electrode holder	For metallic arc welding; copper jaws prevent sticking	Lincoln Electric Co.	69	March 28	859
Die head	Floats on shank, permitting self-centering on stock	Landis Machine Co.	70	March 28	859
Grinder	Air-operated, light in weight; close speed control	Buckeye Portable Tool Co.	71	March 28	859
Grinder	Pneumatic; for grinding metals of high tensile strength	Rotor Air Tool Co.	72	March 28	859



No. 69—Electrode holder

keeps all wearing parts running on an oil film, thus reducing wear to a minimum. Two types of handles can be furnished; a squeeze-type straight handle or an inside trigger-grip handle.

New Electrode Holder Is Cadmium Plated

No. 69

Lincoln Electric Co., Cleveland, announces an improved type of electrode holder for metallic arc welding. A powerful clamp holds the welding electrode firmly and a release feature permits changing electrodes quickly. The handle grip is designed for easy holding and it is claimed that the holder operates exceptionally cool, because the welding current is carried from the point of cable entry to the copper jaws by copper strips of low resistance.

The copper tips of the jaws reduce the sticking of the electrode to the jaws with the result that the electrodes can be changed faster and easier and the life of the holder prolonged. The shape of the holding clamps has been altered to give compactness to permit work in close corners. All metallic parts of this holder are coated with nontarnishing cadmium plating.

Die Head Is Centered on Stock by New Design

No. 70

Landis Machine Co., Waynesboro, Pa., has placed on the market a new type landmatic die head for turret lathes and hand-operated screw machines. A feature of the head is that it floats or flexes on the shank. This allows the head to center itself around the center of the stock and thereby produces a full thread, even though the stock revolves eccentrically.

The locking mechanism is not a part of the shank; it floats with the head proper. The driving torque is transmitted directly from the shank to the head body, and is independent of the rest of the head. It is opened automatically by retarding the forward motion of the carriage and is closed by hand.

The chasers are supported on the face of the head. This insures a maximum of chip clearance and a convenient access to the chasers when it is necessary to remove them for grinding. The head is made of a high grade of carbon steel heat treated. This construction reduces the wear to a minimum and prolongs the life of the head. The adjusting worm is under proper turning tension at all times, eliminating the necessity of locking it after each adjustment for size.

Close Speed Control on Pneumatic Grinder

No. 71

Buckeye Portable Tool Co., Dayton, O., is marketing a new air-operated portable grinder, light in weight and small in size, adapted for use in narrow places. A new type governor, which regulates the flow of air into the rotor, is provided. As the grinding pressure is applied, the governor allows more air to pass into the rotor maintaining a grinding speed within 100 revolutions of the standard free speed of the tool.

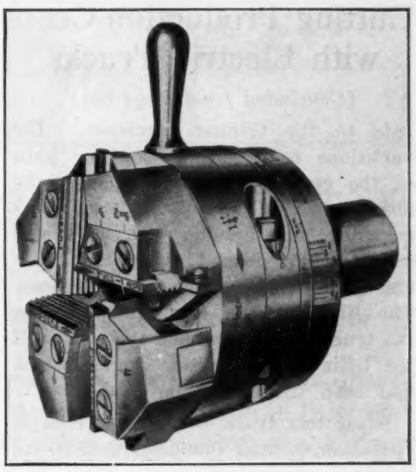
The danger of wheel racing is eliminated, should the governor break, by a mechanical arrangement that stops the tool. These grinders are available with speeds regulated for either vitrified or high-speed emery wheels, depending on the individual user's preference, and for both 6 and 8-inch wheels.

Grinder Has High Speed and Production

No. 72

Rotor Air Tool Co., Cleveland, has announced a new high production grinder, designed for use with 8 x 1-inch high-speed rubber, bakelite, and elastic bonded wheels and for grinding metals of high tensile strength, such as steel, electric and acetylene welds, malleable iron, etc.

In order to provide the required surface speed of 9000 feet per minute for 8-inch wheels, the high production grinder operates under load



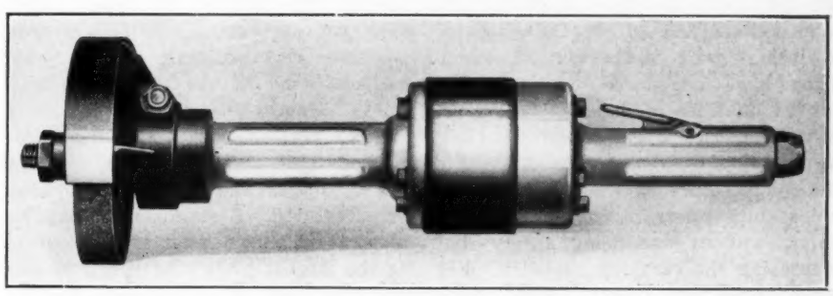
No. 70—Die head for turret lathes

at 4300 revolutions per minute. The new model, patented rotor governor controls this speed, regulating the intake air and keeping the machine at a constant speed under load. The unit weighs 16 pounds, with guard, and is furnished standard either with straight or spade type of handle.

It also incorporates the new type of rotors which have increased the power of all rotor motors substantially. They are balanced accurately so that the machine runs without vibration. This prevents the wheels from wearing out of round, and it is claimed, increases wheel life 10 to 25 per cent.

Cast Toy Makers Busy

Manufacturers of cast iron toys in the Lancaster, Pa., district are exceptionally active. The Hubley Mfg. Co., Lancaster, which has been making cast iron toys for 20 years, has completed a new office building and is planning additions to its foundry to give it space for 40 more molding floors. Other plants active in making cast iron toys include the United States Hardware Co., Columbia, Pa., Grey Iron Castings Co., Mt. Joy, Pa., Susquehanna Castings Co. and Wrightsville Hardware Co., Wrightsville, Pa., and the Andes Foundry Co., Lancaster.



No. 72—High production grinder; load speed: 4300 revolutions per minute

Cutting Production Costs with Electric Trucks

(*Concluded from Page* 851)

vats to the tinning machines. The partitions came directly in the path of the crane and its use had to be abandoned. A special lift truck was designed for handling these tanks, which when loaded with tin plate and water weighed over 8500 pounds. The lift platform was split so that the truck could straddled the tank and the lifting arms engage angles which had been welded to the tank.

After this truck had been placed in operation, it was found that with one driver it could handle the work formerly performed by a crane operator and two helpers. The chief saving, and one which paid for the truck in less than a year, came from the decrease in damage to the tinning machines themselves. Due to the steam that obscured the view of the crane operator under the old method, it had been practically unavoidable that a bosh tank should hit a tinning machine when being lowered into position. These accidents were expensive to repair and the reduction in repair cost, as stated before, paid for the new trucks. The fact that the tinning machines were less often closed down for repairs and the production per machine measurably increased provided additional savings which could be attributed to the truck.

Another interesting feature of this truck was a special cover which fitted over the tank when on the truck. The cover was suspended from a set of compression springs and when the lifting mechanism was operated the top of the tank was raised against this cover and the compression of the springs insured a tight fit. By placing what amounted to a large gasket on the under side of the cover, all splashing was eliminated so that floor and working conditions were greatly improved.

Increasing the size of the units handled is one of the ways of making indirect savings. A nail mill installed ram trucks to handle coils of wire and feed the machines. They increased the size of the coils from 150 to 300 pounds and each machine had to be shut down half as often. The increased production from these machines paid for the equipment.

Industrial trucks employed in charging and unloading heat treating furnaces can work under temperature impossible for hand labor and the waste heat and lost time while waiting for cooling both have been eliminated. In fact, the more arduous and disagreeable the operation is for labor, the better chance there is for savings by the use of the truck. It is not consistent with modern humane methods to expect a man to labor at a task which he could do faster, better and easier were he equipped with a machine.

Fig. 5 illustrates the use of a tiering truck for die changing. An auxiliary winch is employed for drawing the die on and off the platform and electric trucks built to handle dies up to 15 or 16 tons in weight now are in service.

The use of electric industrial trucks should increase the capacity of the laborer from 5 to 30 times. A truck can carry 8 to 10 times the weight possible for a man to move and carry it at from 2 to 3 times his speed. Theoretically, therefore, the truck can perform the work of from 15 to 30 men. Actual instances run from 5 to 35 men released for productive work, the latter number being reached where the truck was kept busy 100 per cent of the time.

Important as the labor cost is, the few examples just cited illustrated the varied ways in which trucks can earn dividends and the plant executive should examine the following possibilities resulting from the purchase of an electric industrial truck:

1. Decrease in storage and manufacturing facilities.
2. Decrease in inventories.
3. Decrease in insurance, etc., on the two items above.
4. Adaptibility of the equipment to growth or changes in layout or production processes.
5. Decrease of idle hours of machines and skilled labor.
6. Decrease in breakage of goods and equipment.
7. Decrease in hazards and hardships to workmen.
8. Use of equipment as a pace setter and to raise general morale.
9. Decrease in managerial overhead.

Offsetting these possibilities the following losses should be considered:

1. Cost of plant changes.
2. Lost production during changes.

If a plant manager will capitalize his labor charges at 6 per cent and compare it with the cost of the equipment he will appreciate the cost of a human machine. It is not fair to the men in the plant to keep them on back-breaking tasks. The man with a machine will be better satisfied and the handling cost per ton will be cut anywhere from 25 to 75 per cent.

Large Plates of Stainless Iron Now Rolled by Scotch Firm

RESEARCH work in special steel is done extensively in the British iron and steel industry, and among the leaders is the firm of David Colville & Sons Ltd. of the Dalzell Steel & Iron Works, Motherwell, Scotland. They have introduced new and improved qualities of steel as the result of systematic investigation in their own works. A recent development is the manufacture of a steel which enables shipbuilders to construct lighter ships, without sacrificing safety, but increasing the carrying capacity. For more than four years Colvilles have made a rust-resisting steel, which in structure is said to show a corrosion rate less than 20 per cent of that of mild steel. Demand has developed in the British market for steel which does not rust at all. Stainless iron possesses this property, but its price has restricted its use. At the Dalzell works experiments have been made and all the difficulties of large production have been overcome, so that plates, angles and sections have been manufactured of stainless iron. The illustration shows what is believed to be the largest plate ever rolled in this material, and is only one plate of several in a recent order.

Editorials

Kill the Dill Bill!

SENATOR DILL of Washington is the author of a bill which if enacted would seriously threaten the very foundation of patents upon which the industries of America have been erected. The proposed legislation has such far reaching possibilities for destruction and confusion that IRON TRADE REVIEW devotes several pages in this issue to a statement of its proposals and a review of the hearings before the senate committee on patents.

It is clear that the senator and other advocates of the measure are trying to find a way to prevent alleged monopolies built up through the control of important patents. The bill would provide that any company found guilty of violating the anti-trust laws automatically would be deprived of the right to defend its patents against infringement.

In his efforts to reach certain large corporations the senator seems to overlook the fact that he is advocating the destruction of the patent rights of thousands of innocent manufacturers whose ability to carry on business successfully depends in a large measure on the patents they hold. The Dill bill is so absurdly impracticable and so freighted with danger to industry that every owner of letters patent should insist that further favorable consideration of it by the senate be stopped immediately.

Trade Associations Trying Arbitration

ACTION by the Institute of Scrap Iron and Steel in adopting recently a resolution calling for compulsory arbitration of disputes between members is another indication of the co-operation trade associations are giving to a national system of business arbitration. Growing appreciation of the advantages of the plan has been noted in the machinery builders and allied trades, as evidenced by the address of W. W. Nichols, president, the Machinery Builders society, before the Machinery and Equipment associations were formally invited to avail themselves of counsel and facilities of the American Arbitration association for the amicable settlement of any commercial dispute.

Iron and steel scrap relationships would seem peculiarly susceptible to adjustment by arbitration. Technicalities which would stump the average judge and jury are only so many every-day facts to the trade. A suit over scrap in court may easily not be decided on its merits because of the intricacies of trading, whereas an arbitration panel would seem to render true justice. In fact, arbitration by scrap experts would truly be a trial by peers.

Trade associations are organized for co-operation and nothing is more disruptive than litigation between members. The usual court proceedings drag along for months, and sometimes years, making co-operation by those members in the trade associations impossible.

As a general rule a decision in court does not settle the grievance; it frequently tends to aggravate it. It is only natural that trade associations, depending for their effectiveness on the mutual goodwill of all members, should lean toward arbitration. Experience will soon demonstrate whether the confidence expressed in the system by those associations which are trying it is justified.

Ore Reflects Steel Improvement

LAKE Superior iron ore prices have not been considered a sensitive barometer of iron and steel market conditions. The supply of ore has been so abundant, and production facilities so well organized, that competition within the industry itself has tended to keep the prices down, and set them apart from factors usually making up the business weathervane. Added to this is the practice of establishing prices in the spring for the succeeding 12 months. They do not fluctuate as do iron and steel prices, and for four consecutive years they remained unchanged.

When iron ore prices move it is a positive indication of pressure from strong forces, and when they advance no further proof is needed of improvement in iron and steel. The ore producers know they could not hope to obtain more money for their commodity if the markets and prices for iron and steel were not favorable. This applies not only to the immediate situation, but to the general prospects for finished products in the ensuing year, when the ore must be paid for.

The trend of ore prices this year is highly significant. Pig iron prices moved downward six consecutive years until this spring, when they were 50 cents to $1 higher than they were a year ago when consumers began to purchase ore. The trend may not have reversed itself for an indefinite period, but with ore prices higher it is not

unreasonable to believe that the downward movement has been checked, and improvement will continue for some time. From the advance estimates of ore requirements it is certain that iron and steel producers look forward to a larger year in point of tonnage than in 1928.

With ore prices at the new levels they still are 11 per cent below 1915, while upper lake rail and vessel rates are about 60 per cent higher than in 1915, and the rail rates to Pittsburgh and Wheeling 40 per cent above 1915. The ore producers, therefore, should be given the full benefit of the moderate increase in their prices.

Shippers' Car Needs Good Omen

OPTIMISTIC predictions as to the course of industrial activity in the second quarter predominated at the recent meeting of the Allegheny regional advisory board. Shippers from that district estimate that business over the next three months will be sufficiently active to require 150,000 more freight cars for the movement of their products than in the corresponding 1928 period. Railroads that will feel this additional business serve the great industrial district of western Pennsylvania, eastern Ohio, northern West Virginia and parts of Maryland. This includes a large portion of the steelmaking capacity of the country.

An increase of 7.4 per cent is looked for in carloadings of iron and steel products. This substantiates the opinion, based on current backlogs of steel producers and diversification of good demand, that mill operations will be slow to taper off from their present high rate. A slight decrease from the active second quarter of 1928 would not be particularly unfavorable in view of the rapid pace that has prevailed since Jan. 1. A predicted increase, therefore, is impressive.

Other gains expected by shippers include 17 per cent for coal and coke, 11 per cent for machinery and boilers, 8 per cent for agricultural implements and vehicles other than automobiles, and 14 per cent for fire brick, in addition to a number of other lines not related to the iron and steel industry but whose prospective gains in activity favorably enhance the general outlook.

What Our Readers Are Thinking

How To Solve Manganese Tariff

To the Editor:

High tariff on manganese ore, 1 cent per pound of manganese content, or about 60 per cent ad valorem, has existed now for 6 years, during which domestic manganese ore mining has contributed to the industry very small tonnage. Fifteen thousand tons of metallic manganese, averaging about 5 per cent of the United States consumption is all that was delivered last year by domestic producers.

As far as a ferroalloy industry is concerned, it is safe to say the manganese ore mining of the United States does not exist, and according to very authoratitative and eminent mining men and geologists, it never will exist.

Under the name of manganese ore industry in the United States actually is mining low grade ferruginous manganese ores, lending themselves to beneficiation with greatest difficulty. This industry exists only because of high tariff duty on the imported high grade manganese ore, and the day this duty will be abolished, mining of manganiferous lean ores in the United States will stop.

It is evident that economically the duty on manganese ore is nonsense and the only pro-traffic argument on manganese ore which should be considered is war-time emergency. To be able to make deliveries of manganese ores from deposits of lean, hardly workable ferruginous manganese ore in time of war, it was decided to support "a knowingly lost cause," at a cost to the nation of about $4,500,000 every year.

Whether in case of war, the domestic manganese ore industry will be able to supply necessary quantities of high quality manganese ore is very doubtful and no one at present can give an assurance of that. Such assurance, however, lies in another measure which is prompted by common sense and simple arithmetic.

As it was recommended by the commission of the American Institute of Mining and Metallurgical Engineers in 1923 and later on supported by the secretary of war, the best solution of war emergency provision is the purchasing of 600,000 tons of high grade manganese ore and keeping it is stock. This stock, with the regular inventories at steel plants, may tide us over for more than two and one-half years.

Putting it in other words, the committee of mining engineers has suggested creation within our borders of a "manganese ore mine" which will last for 2 years in case of emergency. Creation of such a mine, which will give an unequivocal and not probable service, will cost about $11,000,000. Yearly interest on such investments amounts to $600,000. As $600,00 is less than $4,500,000, which is spent for duty on manganese ore and ferromanganese each year, it is clear that the suggestion of the mining institute's committee is more profitable to the country.

Besides, in such case, domestic deposits of ferruginous manganese ores will be with us in case of emergency and not partially depleted, as they will be, if unprofitable domestic mining is supported at the expense of the nation.

The only question arises—who is going to finance the creation of this "manganese mine" within our borders? Being connected with defense of the country, such measure should be financed by the government. But as the industry wishes the government to "keep away from the business," would it not be to the advantage of ferromanganese users if this financing would be left to the producers of ferromanganese with the understanding that the expense of carrying excessive stocks will ments amounts to $600,000. As $600,000 is less than

In this way this extra expense will be justly prorated and the ultimate consumer of iron products will be far better off than now.

FEODORE F. FOSS,
Wheeling Steel Corp.

Wheeling, W. Va., March 19, 1929.

IRON TRADE REVIEW

Volume 84, Number 13 — Published Every Thursday

E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Production Costs Reduced with Industrial Trucks. Page 849.

WITH increased production, and greater operating efficiency the steel industry in 1928 succeeding in raising its average return on invested capital to the "munificent" sum of 6.55 per cent. The general average for the country's basic industries is approximately 10 per cent. Steel earnings last year were 26 per cent higher than in 1927, but below the average for 1926, which was 6.86 per cent. IRON TRADE REVIEW has made its fourth annual analysis of earnings of 22 leading iron and steel companies, and therefore is able to show the average earnings for the past four years as 6.08 per cent.

The Readers' Page

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IRON TRADE REVIEW is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers Inc.; and National Publishers Association. Branch offices: 1147 People's Gas Bldg., Chicago; 410 Traction Bldg., Cincinnati; 2203-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburgh; 24 California street, San Francisco; 1653 Pennsylvania avenue, Washington; and Boston. Foreign offices: Prince's Chambers, Birmingham, Eng.; Caxton House, Westminster S. W. 1, London; 9 Rue de Londres, Paris, France; Wilhelmstrasse 114, Berlin, S. W. 48, Germany; cable address: *PENTON*, Cleveland; *IROTRAPEN*, London. Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1929 by the Penton Publishing Co.*

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The Business Trend

Federal Reserve Board Checks Speculation

By JOHN W. HILL, Financial Editor

AS A climax to weeks of rumblings in the marts of finance call money on the New York stock exchange climbed to 20 per cent on Tuesday, the highest level attained in years. This development precipitated a crash of values on the exchange, and seemed to give an affirmative answer to the question of whether the efforts and warnings of the federal reserve board would be effective in checking speculation.

RECENT conferences of federal reserve authorities and ample evidence that they were attempting to ease the credit situation by moral suasion before resorting to higher discount rates, tended to create extreme uncertainty. Last week security prices in Chicago were shaken by the report that banks there had requested brokers to reduce loans by 25 per cent.

MEANWHILE brokers' loans in New York climbed to a new high peak. Money rates have been growing steadily firmer and the federal reserve board has been concerned lest interest rates rise to a point where business activities would be affected adversely.

AS A matter of fact, companies with large cash resources actually are being benefited instead of hampered by high money rates. This is because the money loaned on call on the New York stock exchange by numerous corporations is bringing a high rate of return. In other words, these companies are lenders and not borrowers.

WHILE it is true that companies which have cash to lend are not suffering from the current credit situation, less financially strong enterprises are not so fortunate. Generally speaking, industrial conditions continue sound. The time is near for the arrival of peaks of activity in a number of lines, including automobile production, but thus far there is no evidence that any severe letdown is imminent.

CHIEF uncertainty revolves about credit. The country has exported more than $500,000,000 of its gold supply. This has had the result of strengthening financial and economic conditions in Europe. But it also has narrowed the credit base in this country. Steady expansion of stock market loans has continued.

The Barometer of Business

INDUSTRIAL INDICATORS

	Feb.	One month ago	One year ago	Average 1913
Pig iron output (Daily average, tons)	114,883	110,736	99,471	83,900
Machine tool index	300	285	195	.....
Unfilled orders U. S. Steel Corp (tons)	4,144,341	4,109,500	4,398,000	4,513,000
Ingot output (Daily average, tons)	180,198	166,274	160,591	.....
Dodge Bldg., awards in 37 states (sq. ft.)	54,700,000	58,773,000	68,847,400	.....
Automobile output	501,445	400,000	345,000	.....
Coal output, tons	47,400,000	51,485,000	41,290,000	39,869,000
Business failures; number	1,965	2,535	2,176	1,336
Business failures; liabilities	$34,035,772	$53,877,145	$45,070,000	$22,732,000
Cement production, Bbls.	8,522,000	9,781,000	8,785,000	7,704,000
Cotton consumption bales	598,098	668,389	573,810	438,218
Car loadings (weekly average)	942,000	892,000	897,000	.....

FOREIGN TRADE

	One month ago	One year ago	Average 1913
Exports	$444,000,000	$491,000,000	$373,000,000	$194,000,000
Imports	$371,000,000	$371,000,000	$353,000,000	$149,900,000
Gold exports	$ 1,378,000	$ 25,776,000	$ 5,234,000
Gold imports	$ 48,577,000	$ 14,686,000	$ 5,900,000

FOREIGN EXCHANGE

	Normal	March 1929	One month ago	One year ago
Sterling	$4.86	4.84c	$4.84⅛	$4.87
Francs	19.3c	3.90c	3.90¼c	3.93c
Lira	5.26c	5.22c	5.22⅜c	5.27c
Marks	23.8c	28.70c	28.70c	23.90c

FINANCIAL INDICATORS

	Feb.	One month ago	One year ago	1913
25 Industrial stocks*	$354.00	$338.38	$258.00	$58.19
25 Rail stocks*	$127.20	$128.46	$120.00	$82.90
40 Bonds*	$88.78	$89.51	$93.00	$93.00
Bank clearings (000 omitted)	$54,701,000	$66,211,000	$44,605,341	$13,895,000
Commercial paper rate N. Y., per cent	5¾	5½	4-4¼	5.60
**Commercial loans (000 omitted)	$8,850,000	$8,835,000	$8,731,419	.....
Federal Reserve ratio, per cent	69	67	74	.....
Railroad earnings†	$77,261,000	$113,000,000	$57,070,000	$59,301,000
Stock sales, N. Y. stock exchange	77,968,730	110,805,000	47,009,070	6,924,000
Bond sales, par value	$176,802,000	$239,521,000	$238,819,875	$41,499,000

*March 21, 1929.

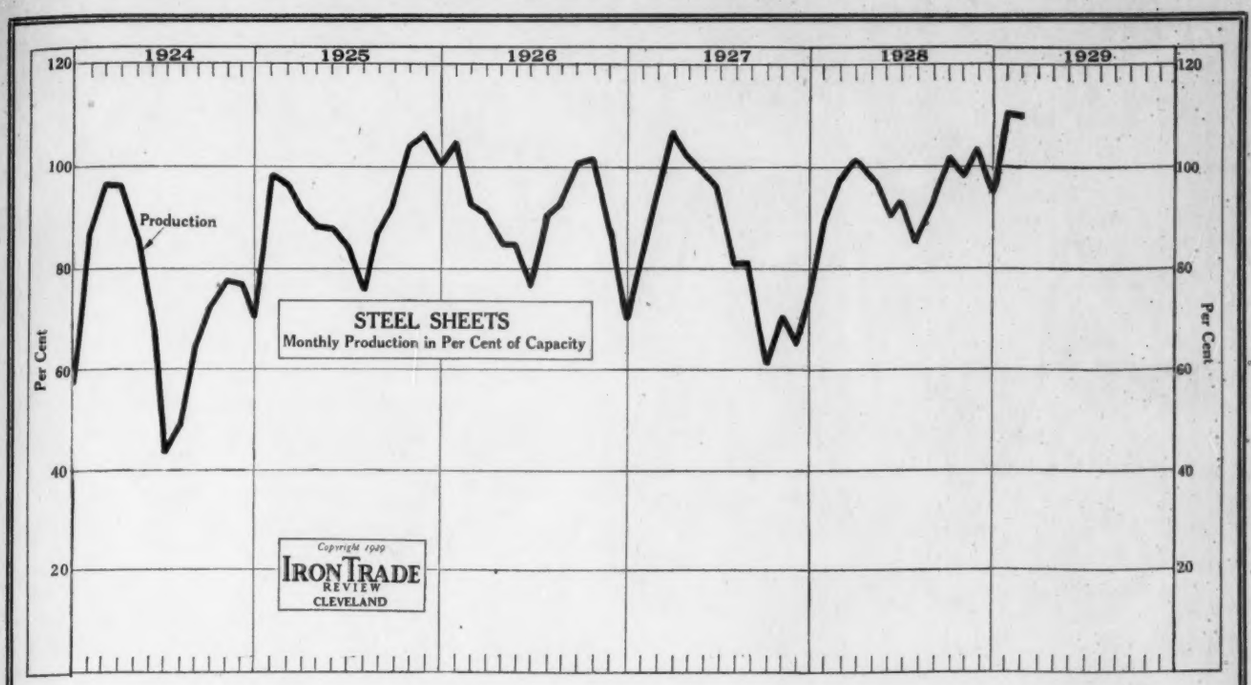
**Leading member banks Federal Reserve System.

†Jan., 1929.

COMMODITY PRICES

	March	One month ago	One year ago	1913
IRON TRADE REVIEW composite average of 14 iron and steel prices	$36.28	$36.25	$35.91	$26.32
Bradstreet's index	139.1	139	143.8	100
Wheat, cash (bushel)	$1.31	$1.30	$1.60	92c
Corn, cash (bushel)	95c	93c	98c	51c
Petroleum, crude (Bbl.)	$4.10	$4.10	$2.80	$2.50

The Business Trend

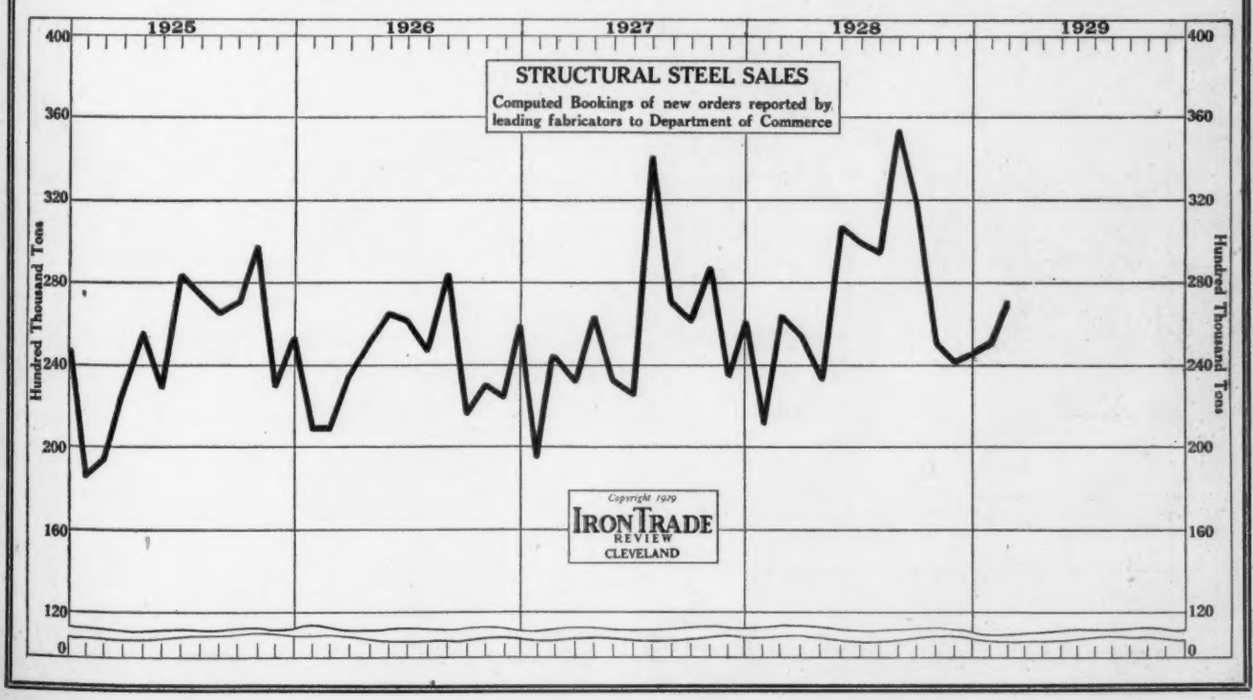


Steel Sheets

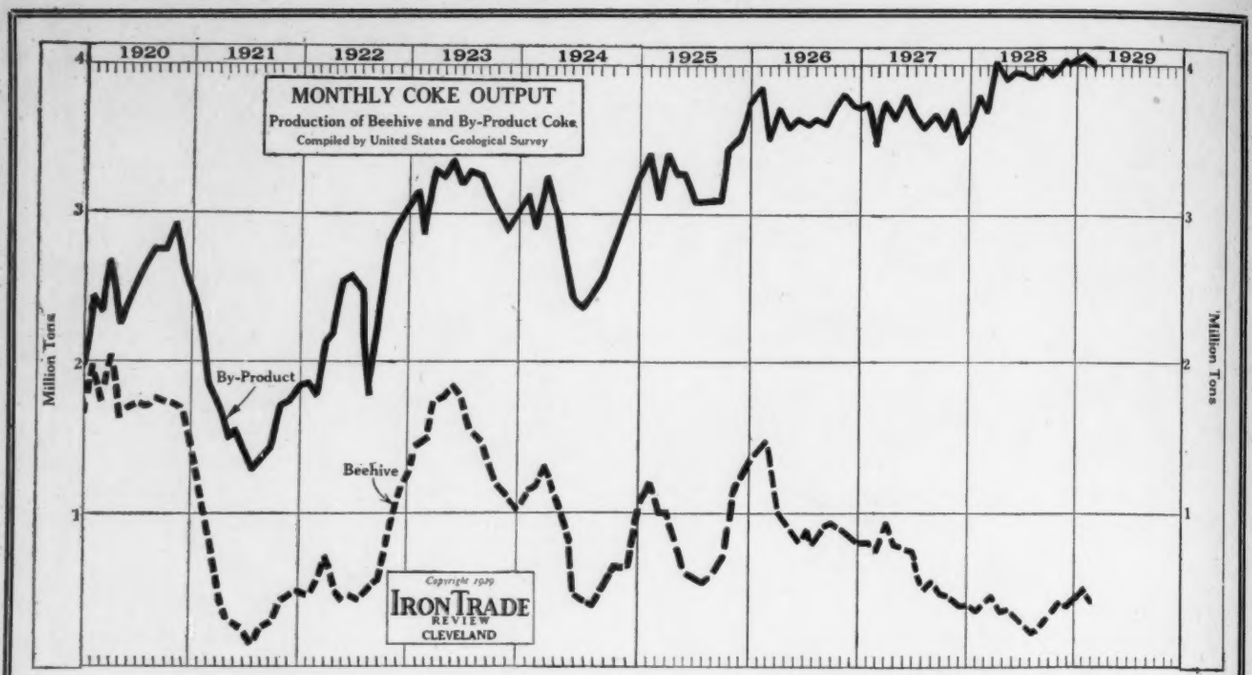
THE pace of steel sheet production was maintained at a high level during February. According to the National Association of Flat Rolled Steel Manufacturers, production for the month stood at 326,468 net tons, or 109.7 per cent of the capacity of the producers reporting to the association. This compared with 109.9 per cent of capacity in January. Total sales for the month were 389,496 tons or 130.8 per cent of capacity, compared with 438,390 tons in January. Unfilled tonnage continues large.

Structural Awards

COMPUTED tonnage of structural steel orders in February reached the highest total since September, 1928, according to reports to the department of commerce. For the month, the volume of computed tonnage was 269,500 tons, compared with 246,400 tons in January and 265,650 in February, 1928. This increase in orders does not bear out reports from other quarters that construction activities are suffering from high money rates. Total awards for the first two months are computed at 515,900 tons.



The Business Trend

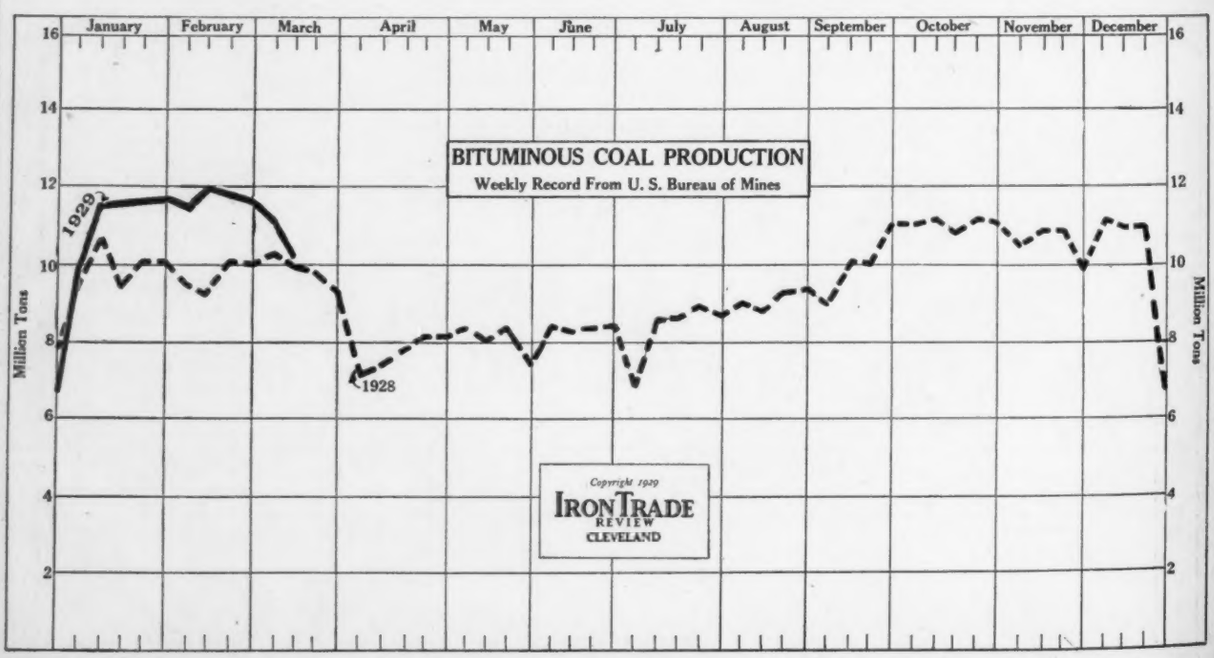


Coke Production

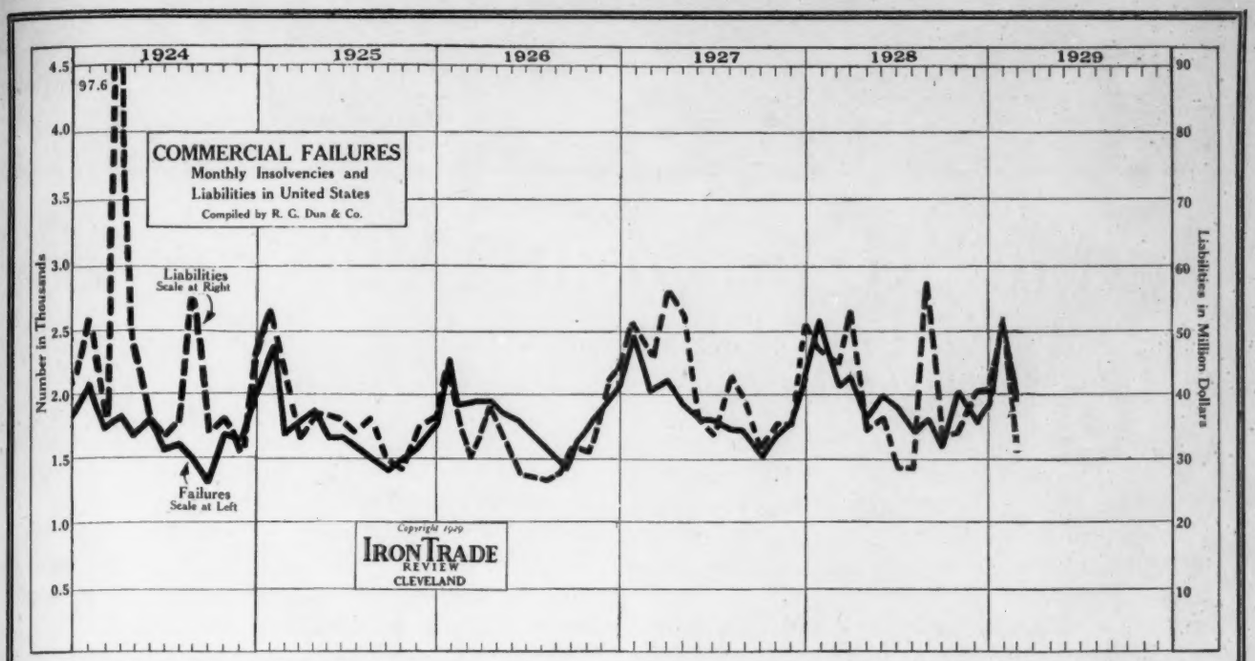
FEBRUARY brought new high records of daily production of by-product coke for the fifth month in succession. The daily average rate for the month was 146,061 tons, an increase of 4 per cent over January and one of 14 per cent over February, 1928. The annual rate was 53,300,000 tons. The total output for February was 4,089,710 tons, somewhat less than for the larger month of January. February output of beehive coke was 440,200 tons, compared with 479,100 tons in January.

Coal Output

COAL production has shown a tendency to turn downward during March. In the second week of the month output was 10,274,000 tons compared with 11,154,000 tons one week before and 11,752,000 tons in the week ended Feb. 23. Production in the second week of March was smaller than for the corresponding period one year ago, when the total was 10,392,000 tons. For the coal year to date, output of soft coal amounts to 475,389,000 tons, compared with 446,075,000 tons for corresponding period one year ago.



The Business Trend

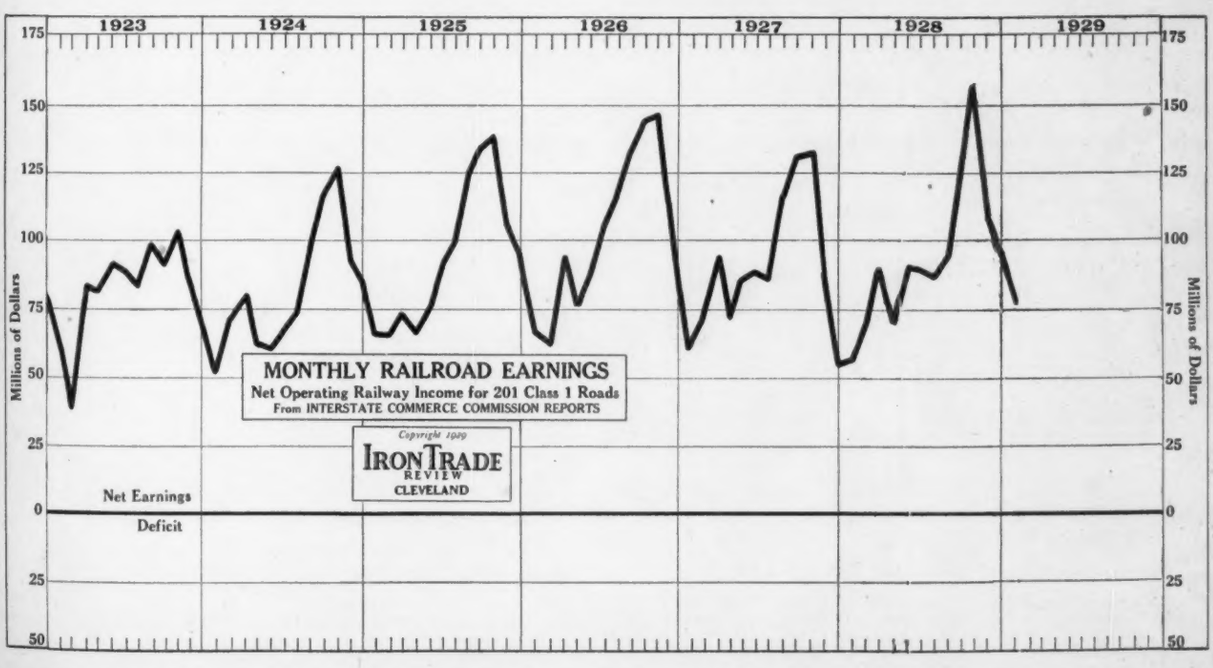


Business Failures

DURING February the country's record of insolvencies was relatively favorable, improvement appearing both in the number of commercial defaults and in the number of liabilities. The number of failures for the month was 1965, which was 22.5 per cent below those of January. The decrease during the same period last year was 17.7 per cent. The aggregate of liabilities reported was $34,035,772 or 36.8 per cent under the total for January, while the falling off a year ago was smaller.

Railroad Earnings

NET railway operating income of class one roads in January amounted to $77,261,598. This is the largest January figure for any recent year, comparing with $57,070,898 in January, 1928, and $61,578,695 in January two years ago. The net was at the annual rate of return of 5.59 per cent on property investment of the roads, compared with an average of 4.71 per cent for all of 1928. Greater traffic and increased efficiency have contributed to the better showing by the railroads in recent months.



Output Record, but Deliveries Lag

Best Iron, Steel Quarter in History Fails to Meet Needs—Ore Advance Established—Pig Iron Prices Up—Structurals Active

NEVER has so much pig iron and finished steel been made as in the quarter now ending, yet, far from exhausting the country's requirements, backlogs generally are longer and deliveries are more deferred than when the quarter opened.

Since Jan. 1 the daily rate of pig iron output has risen from 110,800 tons to about 116,500 tons, and of steel ingots from 166,000 tons to about 185,000 tons. Approximately 10,300,000 tons of pig iron and 13,600,000 tons of ingots—a quarterly record for both—have been produced.

Little Speculative Buying Being Done

With stocks, both of producers and consumers, lower than on Jan. 1, it is assumed that this record-breaking volume of iron and steel has passed directly into consumption. Speculative buying appears negligible. Producers generally are confident that April activity will approximate that of March. Chicago district steelmakers, in fact, see every ton of ingots to be made to July 1 definitely earmarked.

The past week's contracting for second quarter steel has been out of balance with current production, but this is ascribed to the turn of the quarter, advancing prices and the tight delivery situation. On sheets, strip, bars and plates, five to twelve weeks' delivery is being promised and consumers continue solicitous of places on mill books, to which their specifications attest.

Slight shifts among major outlets for steel seem scarcely to have affected the general level of business. Automotive output is more spotty; some makers have accumulated adequate stocks of cars for spring campaigns and are easing off, while others are stepping up rates. Freight car buying is lighter, while more locomotives have been bought. Wire products are moving better.

Record Demand Pulling Prices Up

Excepting pig iron in the South, the iron and steel price situation is distinctly stronger. On steel bars, plates and shapes, new business is predicated on 1.95c, Pittsburgh, though some large users have not yet bought. Higher sheet prices are not yet tested, but are steadier. Pig iron is rising.

Despite a shortage of semifinished steel, Chi-

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	March 27, 1929	Feb., 1929	Dec., 1928	March 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.26	19.86	20.01	19.21
Basic, valley	18.00	17.50	17.50	17.00
Basic, eastern del., eastern Pa.	20.25	20.50	19.75	19.50
No. 2 foundry, del. Pittsburgh	19.76	19.26	19.76	19.01
No. 2 foundry, Chicago	20.00	20.00	20.00	18.50
*Southern No. 2, Birmingham	15.50	16.50	16.50	16.00
**No. 2X, Virginia furnace	20.75	21.25	20.50	20.50
**No. 2X, eastern del. Phila.	22.26	22.01	22.01	21.26
Malleable, valley	18.50	18.00	18.00	17.25
Malleable, Chicago	20.00	20.00	20.00	18.50
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	19.26	18.76	18.76	18.51
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.85	2.90	2.75	2.60
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	34.25	34.00	33.75
Sheet bars, open-hearth, Pittsburgh	35.00	34.25	34.00	33.70
Billets, open-hearth, Pittsburgh	34.00	33.25	33.00	33.00
Wire rods, Pittsburgh	42.00	42.00	42.00	44.00

	March 27, 1929	Feb., 1929	Dec., 1928	March 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.90	1.90	1.90
Steel bars, Chicago	2.05	2.00	2.00	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.00	2.05	2.00	2.00
Shapes, Pittsburgh	1.95	1.90	1.90	1.90
Shapes, Philadelphia	2.01	2.01	2.06	2.08
Shapes, Chicago	2.05	2.00	2.00	2.00
Tank plates, Pittsburgh	1.95	1.90	1.90	1.90
Tank plates, Philadelphia	2.15	2.10	2.10	2.10
Tank plates, Chicago	2.05	2.00	2.00	2.00
Sheets, black, No. 24, Pittsburgh	2.85	2.85	2.85	2.85
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.10	2.10	2.10
Sheets, gal., No. 24, Pittsburgh	3.60	3.60	3.60	3.75
Sheets, black, No. 24, Chicago	3.10	3.00	3.00	3.05
Sheets, blue anl., No. 10, Chicago	2.35	2.25	2.25	2.25
Sheets, galvanized, No. 24, Chicago	3.85	3.75	3.75	3.90
*Plain wire, Pittsburgh	2.50	2.50	2.45	2.50
*Wire nails, Pittsburgh	2.65	2.65	2.60	2.65
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25
*To large jobbers				
SCRAP				
Heavy melting steel, Pittsburgh	18.50	18.60	17.60	14.75
Heavy melting steel, eastern Pa.	16.25	16.30	15.35	13.75
Heavy melting steel, Chicago	15.75	16.00	14.50	12.75
No. 1 wrought, eastern Pa.	16.25	16.25	15.50	15.25
No. 1 wrought, Chicago	16.25	15.75	14.50	12.45
Rails for rolling, Chicago	17.50	17.50	16.50	14.45

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.10c to 2.25c
New York, del.	2.175c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.00c to 2.10c
Birmingham, base	2.10c to 2.20c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.20c to 2.25c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.145c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y.	2.00c to 2.10c
Birmingham, base	2.10c to 2.20c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Lackawanna, N. Y., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.95c
Cleveland, del., outside mills	1.95c to 2.00c
Philadelphia, del.	2.27c to 2.37c
New York, delivered	2.29c to 2.39c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.00c to 2.10c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.25c to 2.30c
Stock lengths from mill	2.00c to 2.05c
Chicago, billet	2.35c to 2.40c
Chicago, rail steel	2.00c to 2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh, base	2.85c to 2.95c
No. 24, Philadelphia, delivered	3.17c to 3.27c
No. 24, Gary, Indiana Harbor	3.05c
No. 24, Chicago, delivered	3.10c
No. 24, Birmingham, base	3.10c
No. 24, St. Louis, del.	3.27c
No. 24, Pacif. coast ports, c.i.f.	3.50c

TIN MILL BLACK

No. 28, Pittsburgh, base	3.00c
No. 28, Gary, base	3.10c

GALVANIZED

No. 24, Pittsburgh, base	3.60c to 3.70c
No. 24, Philadelphia, delivered	3.92c to 4.02c
No. 24, Gary, Indiana Harbor	3.80c
No. 24, Chicago, delivered	3.85c
No. 24, Birmingham, base	3.85c
No. 24, St. Louis, del.	4.02c
No. 24, Pacif. coast ports, c.i.f.	4.25c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.10c to 2.20c
No. 10, Philadelphia, delivered	2.42c to 2.52c
No. 10, Gary, Indiana Harbor	2.30c
No. 10, Chicago, delivered	2.35c
No. 10, Birmingham, base	2.35c
No. 10, St. Louis, del.	2.52c
No. 10, Pacif. coast ports, c.i.f.	2.725c

AUTOMOBILE

No. 20, Pittsburgh, base	4.10c
No. 20, Detroit, delivered	4.39c

FURNITURE

No. 24, Grade A, Pittsburgh	4.00c to 4.10c
No. 24, Grade B, Pittsburgh	3.80c to 3.90c

(Turn to the following page)

cago steelmaking operations have gained several points and this week average 98 per cent. Pittsburgh mills also have forged ahead, and are at 95 per cent. Only a lack of sheet bars and billets keeps Youngstown district mills under capacity. Steel corporation subsidiaries are unchanged at 96 per cent.

Price strength has its taproot in Lake Superior iron ore, formally advanced 25 cents per ton, or about 6 per cent, for the 1929 season. Sales exceeding 1,000,000 tons and affecting long-term contracts appear to have established the first increase in ore in five years. Inquiry is heavy and ore users generally covering promptly.

Reflecting in part this strength in ore, basic iron has advanced 50 cents per ton, to $18, valley, on a sale of 5000 tons to a Pittsburgh district steelworks. Foundry iron has been put up 50 cents and malleable iron $1 per ton at Detroit. The Buffalo market is up $1. Sales in all districts continue vigorous, though lacking the volume of a buying movement.

Office Building Projects Maturing

Restricted credit seems not to have affected the structural market, and the eastern markets are unusually active for the season. Three office buildings in New York, requiring 33,000 tons, have been awarded. A steel mill at Detroit requires 20,000 tons and one at Monroe, Mich., 3750 tons. Chicago district fabricators may be pinched in getting prompt deliveries. Carbuilders at Chicago, where some plate deliveries are twelve weeks deferred, are specifying 25,000 tons weekly and still are hampered. Over 30,000 tons of plates is pending for ships.

Chicago Bar Business Best in 8 Years

Not in eight years have steel bar mills at Chicago received so heavy specifications as in the past week. Automotive requirements for all classifications of bars also maintain capacity rates at Pittsburgh, Youngstown and Cleveland mills.

Mahoning valley mills have been compelled to turn aside attractive sheet orders this week. Deliveries have become further deferred at Chicago. Specifications are somewhat lighter at Pittsburgh. Statistics for independent sheetmakers for February reveal production, shipments and orders fractionally under the January rate.

Cross-hauling of semifinished steel mirrors the unusual shortage of this basic material. A mechanical breakdown in a Cleveland district mill has necessitated shipments from Chicago and Pittsburgh. Some material is moving from Alabama to Chicago.

Eighty-five locomotives, including 35 for the Erie, have been distributed in the past week. About 2240 freight and 15 miscellaneous cars have been awarded. Action on 4300 cars for the New York Central railroad has been postponed.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (March 27, 1929)	**$36.57**
Last week (March 20, 1929)	**36.37**
One month ago (February, 1929)	**36.28**
Three months ago (December, 1928)	**36.22**
One year ago (March, 1928)	**35.81**
Ten years ago (March, 1919)	**52.28**
Fifteen years ago (March, 1914)	**23.60**

Rising prices on pig iron and heavy steel have advanced the IRON TRADE REVIEW composite of fourteen leading iron and steel products 20 cents this week, to $36.57, the highest point this index has touched in 21 months.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	2.00c
Hot strip 6 1/4 to 24-in., Pitts.	1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, 1.90c plate basis, or 2.10c blue annealed basis.	
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6 1/4 to 24 in.	2.00c to 2.10c
Cooperage stock	2.20c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	3.10c to 3.20c

ALLOY STEEL

Hot Rolled

F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net, 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium	1.50	4.25
Carbon Vanadium	0.95	3.70
9250 (flats)	0.25	3.00
9250 (rounds squares)	0.50	3.25

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.25c to 2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base (Per pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.75	$2.65
Galvanized nails	4.75	4.65
Polished staples	3.20	3.10
Galvanized staples	3.45	3.35
Cement coated nails	2.75	2.65
Manuf. wire, del. Detroit		2.735c
Wire nails, del. Detroit		$2.885

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN PILING

Cut nails, c.l., f.o.b. mills	2.75c
Cut nails, l.c.l. f.o.b. mills	2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton

Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Four-inch, New York	42.80 to 44.80
Six-inch and over, New York	39.80 to 41.80
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20 gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24 | 4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relaying rails, St. Louis	$24.00 to 31.00
Relay rails, Pitts., 60 to 90 lb.	$22.00 to 27.00
Light rails, 25 to 45, mill	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread 5/8 x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread 5/8 x 6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.

Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	85-off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts-Cleve.	3.10c
Structural, c.l. Chicago	3.00c to 3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$34.00
Pittsburgh, bessemer	34.00
Youngstown	34.00
Cleveland	34.00
Philadelphia	38.30 to 39.30
Chicago	35.00
Forging, Chicago	40.00
Forging, Pittsburgh	38.00 to 39.00
Forging, Philadelphia	43.30 to 44.30

SHEET BARS

Pittsburgh	$35.00
Youngstown	35.00
Cleveland	35.00
Chicago	35.00

SLABS

Pitts., Young., and Cleve.	$34.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.50
Mesabi nonbessemer, 51½%	4.50

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per unit, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	10.50 to 11.00
North African low phosphorus	11.50 to 11.75
Swedish foundry or basic, 65%	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	10.00 to 11.00
Newfoundland foundry, 55%	8.50 to 9.00
Tungsten spot and early fut., short ton unit, duty paid	$13.00 to 14.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	35 cents
Indian	35 to 36 cents
Caucasian, (53-55 per cent)	36 to 38 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, imported duty paid east. tide., gross ton	$19.90 to 20.40

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Pet Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Net ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Market Stronger—Prices up 50 Cents to $1 at Buffalo and Detroit—Basic Established at $18, Valley, on Sale of 5000 Tons

WITH blast furnaces well booked for second quarter, stocks reduced, shipments heavy and coke prices higher for the next three months than in the first quarter, the pig iron market continues to gain strength. Prices at Buffalo have moved up $1 to $19.50 for foundry and $20 for malleable, while at Detroit foundry iron is up 50 cents to $20.50, base, and malleable is $1 higher, now $21. The sale of 5000 tons of basic iron to a Pittsburgh district steelworks at $18, valley, establishes that grade at 50 cents above the minimum of a week ago. The advance of 25 cents a ton in the price of iron ore has had a strengthening influence, especially in view of the scarcity of some grades of ore. More than 30,000 tons of basic iron has been sold in eastern Pennsylvania

PITTSBURGH, March 26.—Basic pig iron prices have joined others on the upgrade. A local steelworks closed for 5000 tons of basic in the past week, paying $18, valley, 50 cents above the minimum a week ago. With this exception new buying of pig iron is limited to small tonnages, although the tone of the market is stronger under the influence of higher second quarter coke prices and the advance of 25 cents a ton in the price of Lake Superior iron ore. The majority of melters have covered for second quarter, but some who have restricted stocks until after the first quarter are yet to cover their requirements. Small orders for filling-in purposes are received, on which furnaces are quoting $18, valley, for No. 2 foundry iron, and basic; and $18.50 for bessemer and malleable. Practically all furnaces are well booked, and no letup is noted in the recent active rate of shipments.

New York, March 26.—Pig iron demand continues active. New sales total 15,000 to 20,000 tons. It is estimated that fully 75 per cent of the second quarter requirements of this district now are on producers' books. Prices strengthened further during the week. Two Buffalo producers now are quoting $19, base, furnace, on foundry iron for this district, but the quoting of this price is equivalent to withdrawing from the market, because lower prices still are being done on Buffalo iron. The lowest price being named on new tonnage by Buffalo makers now appears to be $17.50, base, Buffalo, although a few consumers still have lower prices outstanding.

Buffalo, March 26.—Buffalo furnaces have advanced all New York state quotations on pig iron $1 a ton. The new prices are $19.50, furnace, for No. 2 foundry and $20 for malleable. Eastern prices were not fixed definitely but would not be shaded more than 50 cents, it was said. One furnace here is booked full for second quarter.

Youngstown, O., March 26.—Pig iron demand shows more life. Several small lots of No. 2 foundry have been sold at $18, furnace, at which price basic also is held. Malleable has brought $18.50, which also is the asking price of bessemer. With certain important producers only limited supplies of basic and bessemer now appear available in this district. The entire valley pig iron market appears stronger this week than in many months.

Cleveland, March 26.—The higher pig iron price situation in surrounding districts has not had an appreciable effect on the Cleveland market. Valley pig iron continues firm at $18, base, furnace, while Buffalo makers have advanced their price $1, making foundry iron $19.50, base, furnace, and malleable $20, furnace, for nearby delivery. At Detroit the price has been marked up 50 cents on foundry iron, making the new price $20.50, base, furnace, and advanced $1 on malleable, this grade now $21. Cleveland furnaces continue to offer foundry and malleable iron in outside territory at $18.50, base, furnace, and $19, base, furnace, for local delivery. Not much change is expected in these prices unless valley furnaces go higher than $19. The market generally continues active, with the average daily shipping rate in March ahead of February. Sales booked by furnace interests at Cleveland during the week totaled 40,700 tons, against 43,500 tons in the week preceding. Inquiries for foundry and malleable are improving. Several users of basic iron are expected in the market soon.

Detroit B furnace of the Hanna Furnace Co. was to be relighted March 27, having been relined.

Cincinnati, March 26.—The peak in second quarter pig iron buying has been passed, and the market is quieter. The Williamson Heater Co., Cincinnati, is in the market for a substantial tonnage. Two northern iron dealers report total sales of 4500 tons and 1000 tons, respectively. Decreases in southern iron prices, which came just after the large purchases for second quarter, have had little or no effect on northern iron prices, although the placing of some tonnages of southern iron is reported.

Chicago, March 26.—Furnace stocks of northern iron are at a reduced level, although well balanced as to grades. The recent steady supplemental first quarter buying has not given furnaces opportunity to build stocks as desired. Malleable foundry operations are heavy. Sellers are entering second quarter with unusually large order books. The Zenith furnace at Duluth, three Iroquois and two Federal furnaces at South Chicago are operating, as in some months, making all the available merchant stacks in the district active. Spot and future sales are being made at $20, Chicago furnace, for base grades.

Southern pig iron is entering lower Illinois markets where the freight advantage is a maximum of $1.50 under the St. Louis delivered price, but it is not disturbing the Chicago market.

(*Concluded on Page* 874)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$18.50
Bessemer, del. Pittsburgh	20.26
Basic, valley furnace	18.00
Basic, del. Pittsburgh	19.76
Basic, Buffalo furnace	17.50
Basic, del. eastern Pa.	20.25 to 20.50
Malleable, valley furnace	18.50
Malleable, del. Pittsburgh	20.26
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	22.26 to 22.91
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, eastern del., Phila.	22.76
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.00
No. 2 foundry, del. Pittsburgh	19.76
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 plain, del., Phila.	21.76
No. 2 plain, Virginia furnace	20.75
No. 2 plain, Buffalo, del. Boston	22.41 to 22.91
No. 2 plain, N. J., tidewater	20.78 to 21.28
No. 2 Tenn., del. Cincinnati	19.19
No. 2 Alabama, Bir. base	15.50
No. 2 Tenn., Birmingham base	15.50
No. 2 Alabama, del. Cincinnati	19.19
No. 2 Alabama, del., Chicago	21.51
No. 2 Alabama, del., Cleveland	21.76
No. 2 Alabama, del. St. Louis	19.92
No. 2X, east. N. J., tidewater	21.28 to 21.78
No. 2X, eastern, del. Phila.	22.26
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	23.91 to 24.41
No. 2X, Virginia furnace	20.25 to 20.75
Gray forge, val., del. Pittsburgh	19.26
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.60
No. 2 foundry, del. Montreal	25.00 to 25.50
Malleable, del. Toronto	23.60
Malleable, del. Montreal	25.00 to 25.50
Basic, del. Montreal	24.00 to 24.50

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

Coke

Beehive Furnace Fuel Reduced in Spot Market, as Production Mounts—Foundry Prices Firm

PRODUCTION of Connellsville furnace coke has been increasing faster than consumption, with the result spot prices are 10 to 15 cents lower. As most consumers have covered for second quarter new requirements for prompt shipment are light. Foundry grades are firm, and buying continues active. Warmer weather has slowed the market for heating coke.

Pittsburgh, March 26.—Beehive furnace coke is easier, with spot fuel quoted 10 to 15 cents lower than a week ago. The majority of large consumers have covered for second quarter, and little demand is noted for coke for prompt shipment. Merchant oven production has risen steadily since Jan. 1, more than offsetting increased consumption. Available supplies consequently are heavier, and some sellers are willing to dispose of such coke at $2.85 and $2.90, compared with $3, prevailing a number of weeks ago. Some makers still are holding to the latter figure. Nearly all large operators continue out of the spot market, having only sufficient coke to supply their contract customers. Foundry coke demand is steady and the price is holding at $3.75 to $4.85.

Production of coke in the Connellsville region for the week ended March 16 was 81,450 tons compared with 78,500 tons the preceding week, according to the *Connellsville Courier*.

Boston, March 26.—Foundries are taking more liberal tonnages of coke than earlier in the year. Prices are steady.

Cincinnati, March 26.—Demand for by-product foundry coke continues strong. Domestic by-product coke is moving slowly. Prices continue firm.

St. Louis, March 26.—The foundry coke situation in this district is featured by continued activity and strong demand. Melters are pressing for deliveries. A scarcity is reported by interests which failed to cover ahead. Demand for furnace coke by industrial users also is brisk, the lead and zinc smelters taking all they can get. Price revisions effective April 1 are expected to be made during the next two or three days.

Birmingham, Ala., March 26.—Coke production is active. The foundry grade continues $5, base, Birmingham. Independent producers still are shipping fuel to consumers in the Middle West.

Coke Prices

Prices pet Net Ton

Beehive Ovens	
Connellsville furnace	$2.85 to 3.00
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell. basis	6.50
Portsmouth, O., ovens, Connell. basis	6.50
Detroit, ovens	9.00
Buffalo, ovens	8.75

Ferroalloys

English Spiegeleisen Stronger—Consumption Continues Heavy

New York, March 26.—The recent higher tendency in the price of English spiegeleisen is believed to be discouraging purchases for the American market. Some spiegeleisen in this country purchased in England last fall still can be had by American consumers at around $34, duty paid, tidewater, for 19 to 21 per cent.

Domestic spiegeleisen continues $34, furnace, for this grade, subject to differentials for large tonnages. Consumption of spiegeleisen continues heavy. E. J. Lavino & Co. have their Reusens, Va., furnace engaged in a short run on spiegeleisen. Shipments of ferromanganese against contracts continue heavy. There is no shortage of the metal. Because consumers generally are under cover for the full year there will not be any second half contracting such as noted in recent years.

Ferrotungsten is about $1.25 a pound, contained, and some prices are reported higher. Consumption is the largest in a long time, and little ore is for sale anywhere in the world today. Wolframite ore is nominal, between $13 and $14, a short ton unit. Scheelite is nominal, between $13 and $15. Prices are the highest since the war. Expectation of higher tariff is an important reason.

Pittsburgh, March 26.—Ferroalloy sellers continue to receive heavy specifications. Spot business is restricted to small buyers. Prices are maintained at $109.79, delivered, Pittsburgh, for ferromanganese and $34 for 19 to 21 per cent spiegeleisen. Increased activity is looked for soon in fluorspar. Few inquiries have appeared but the market appears firm at $18.

Cleveland headquarters of the Bethlehem Steel Co., under the management of John Chandler, are being removed from 2008 Union Trust building to 2600 Terminal Tower building.

March Record for Valley Ingots Virtually Set

Youngstown, O., March 26.—Record high steel ingot output now seems assured for March by local mills with this week's schedules known. Independent open hearths have run straight through Sundays this month, and the bessemer capacity also has been pushed more actively, the total being 90 per cent this week. Steel corporation subsidiaries in this district continue 85 per cent, with all open hearths going at capacity.

Independent steel bar makers have jumped up their production to 85 per cent, against 75 per cent formerly, while Carnegie Steel Co., continues at 85 per cent. Sheet mill production is expected to break all records in March in this district. This week independents have 113 units operating out of 125, against 123 last week, due to scarcity of sheet bars. Strip capacity is engaged entirely, as also is tin mill capacity with independents and 85 per cent by Corporation mills.

To Be Merchant Seller

Birmingham, Ala., March 26.—Gulf States Steel Co. expects to be a permanent factor in the merchant iron market. The blast furnace at Gadsden is now making foundry iron, with an ample supply of basic piles. The Gulf States company will let contracts shortly for a 40-inch blooming mill and a universal plate mill.

Birmingham Stays at 85

Birmingham, Ala., March 26.—Steelmaking operations in the Birmingham district continue at about 85 per cent. Sheet, plate and structural mills lead activity. Wire and wire products output drag.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.25
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producer's plant, net ton	160.00
Do, one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Small Changes in Price as Market Holds Position—Some Grades Are Scarce

PRICES of iron and steel scrap are holding fairly level, small alterations of 25 cents per ton being made in either direction. While most grades are in good supply some scarcity has appeared. Heavy consumption augurs well for continued need by consumers. Production continues at a high rate.

Chicago, March 26.—Dealers have advanced heavy melting steel 25 cents to a range of $15.75 to $16.25, showing the strength in iron and steel scrap, despite isolated weaknesses. Sellers now are quoting a minimum of $16.25 on all consumer inquiries for melting steel. Scrap supplies are scarcely sufficient to care for demand. No fresh railroad scrap will be in this market until early next month, and yard production continues far behind requirements. Most grades are holding their own, with the undertone firm. An exception is cast borings, which is lifeless at $10 to $10.50. One consumer has purchased recently, another is restricting shipments to a minimum number of cars weekly, while the third regular borings consumer is out of the market. Recent bearish influences were unable to depress the list sharply in the face of heavy demand.

Boston, March 26.—Sellers believe better prices are ahead and are slow to sell their tonnages. Business has been limited recently, with prices unchanged.

New York, March 26.—Consuming demand for scrap has improved and

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	12.00 to 12.25
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	17.50 to 18.00
Buffalo, No. 2	14.75 to 15.00
Chicago	15.75 to 16.25
Cincinnati, deal.	13.50 to 14.00
Cleveland, No. 1	15.50 to 16.00
Cleveland, No. 2	15.00 to 15.50
Detroit, No. 1	14.25 to 14.50
Detroit, No. 2	12.25 to 12.75
East Pa., del. mill	16.00 to 16.50
Eastern Pa. No. 2	12.00 to 14.50
N. Y., deal., R. R.	13.00 to 13.50
N. Y., deal., yd.	8.50 to 9.50
Pittsburgh, No. 1	18.50 to 19.00
Pittsburgh, No. 2	16.25 to 16.75
St. Louis, No. 1	14.00 to 14.50
St. Louis, No. 2	13.00 to 13.50
Valleys, No. 1	18.00 to 18.50

COMPRESSED SHEETS

Buffalo	16.00 to 16.50
Chicago	14.00 to 14.50
Cleveland	15.00 to 15.50
Detroit	14.00 to 14.25
E. Pa. new mat.	14.50
Pittsburgh	18.00 to 18.50
Valleys	18.00 to 18.25

BUNDLED SHEETS

Buffalo	12.50 to 13.00
Cincinnati, deal.	11.00 to 11.50
Cleveland	13.00 to 13.50
Eastern Pa.	11.00 to 11.50
Pittsburgh	16.50 to 17.00
St. Louis	10.00 to 10.50

SHEET CLIPPINGS LOOSE

Chicago	8.50 to 9.00
Cincinnati	9.75 to 10.25
Detroit	9.25 to 9.75
St. Louis	10.00 to 10.50

STEEL RAILS, SHORT

Birmingham	13.00 to 14.00
Boston	11.25 to 12.25
Buffalo	19.00 to 20.00
Chicago, (3 feet)	18.50 to 19.00
Chicago, 2 ft. and under	19.50 to 20.00
Cincinnati, deal.	19.00 to 19.50
Detroit	17.00 to 17.50
Pittsburgh	20.00 to 20.50
St. Louis	16.75 to 17.25

STOVE PLATE

Birmingham	13.00 to 13.50
Boston consumers	11.50 to 12.00
Buffalo	14.75 to 15.00
Chicago, net	12.75 to 13.25
Cinn., deal., net	10.00 to 10.50
Detroit, net	9.50 to 10.00
Eastern Pa.	13.00
N. Y. deal., mill	8.75 to 9.00
Pittsburgh	12.50 to 13.00
St. Louis	13.75 to 14.25

ANGLE BARS—STEEL

Chicago	17.00 to 17.50
St. Louis	14.75 to 15.25

COUPLERS, SPRINGS

Buffalo	18.50 to 19.50
Chicago	17.00 to 17.50
Eastern Pa.	19.00 to 19.50
Pittsburgh	22.00 to 22.50
St. Louis	15.75 to 16.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.00 to 20.00
Eastern Pa.	19.00 to 20.50
Pitts. billet and bloom crops	23.00 to 23.50
Cleve. billet and bloom crops	17.50 to 18.00

FROGS, SWITCHES, GUARDS

Chicago	16.75 to 17.25
St. Louis	15.25 to 15.75

SHOVELING STEEL

Chicago	15.75 to 16.25
Cleveland	11.75 to 12.00
Detroit	10.75 to 11.00
Pittsburgh	18.00 to 19.00
St. Louis	13.50 to 14.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.50 to 11.50
Boston, dealers	11.50 to 12.00
Yard wrought	9.50 to 10.00
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 17.00
Chicago, No. 1	16.25 to 16.80
Chicago, No. 2	15.75 to 16.25
Cinn., No. 2	13.50 to 14.00
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 1	15.00 to 15.50
Pittsburgh, No. 2	18.00 to 19.00
St. Louis, No. 1	13.25 to 13.75
St. Louis, No. 2	14.00 to 14.50

SPECIFICATION PIPE

Boston	10.75 to 11.00
Eastern Pa.	15.50 to 16.00
New York, deal.	11.25 to 11.75

BUSHELING

Buffalo, No. 1	16.50
Chicago, No. 1	14.00 to 14.50
Cinn., No. 1 deal.	11.00 to 11.50
Cinn. No. 2	8.00
Cleveland, No. 1	13.00 to 13.50
Cleveland, No. 2	11.25 to 11.75
Detroit, No. 1	12.00 to 12.50
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston	6.25 to 6.50
Buffalo	8.00 to 8.50
Chicago	9.00 to 9.50
Cincinnati, deal.	9.00 to 9.25
Cleveland	10.00 to 10.50
Detroit	7.25 to 7.50
Eastern Pa.	11.50
New York, deal.	8.00
Pittsburgh	10.50 to 11.00
St. Louis	8.00 to 8.50
Valleys	11.50 to 12.00

MIXED BORINGS, TURNINGS

For blast furnace use

Boston, dealers	6.50 to 7.00
Buffalo	11.75 to 12.25
Cincinnati, deal.	9.25 to 9.75
Cleveland	11.25 to 11.75
Detroit	9.00 to 9.25
Eastern Pa.	9.50 to 10.00
New York, deal.	6.50 to 7.00
Pittsburgh	12.00 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 8.50
Boston, chem.	10.00 to 10.50
Boston, dealers	6.50 to 7.00
Buffalo	11.75 to 12.25
Chicago	10.00 to 10.50
Cincinnati, deal.	9.25 to 9.75
Cleveland	11.50 to 12.00
Detroit	9.00 to 9.25
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	7.25 to 7.75
Pittsburgh	12.00 to 13.00
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	13.00
New York, deal.	9.25 to 9.75
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston, dealers	10.00 to 10.50
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve., over 10 in.	13.00 to 13.50
Detroit	12.00 to 12.50
Pittsburgh (light)	15.00 to 15.50

FORGE SCRAP

Boston, dealers	9.00 to 9.50
Chicago	18.50 to 19.00
Eastern Pa.	13.50 to 14.00

ARCH BARS AND TRANSOMS

Chicago, net	21.50 to 22.00
St. Louis	22.00 to 22.50

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	14.00 to 14.50
Chicago	13.00 to 13.50
Cleveland	12.50 to 13.00
Eastern Pa.	15.00 to 16.00
Pittsburgh	16.50 to 17.00
St. Louis	12.00 to 12.50

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston, ship point	17.00 to 17.50
Buffalo	19.00 to 20.00
Chicago	19.60 to 20.15
Eastern Pa.	22.75 to 23.00
Pittsburgh	21.00 to 22.00
St. Louis	20.50 to 21.00

SHAFTING

Boston, ship point	14.50 to 14.75
Chicago	17.35 to 17.90
Eastern Pa.	19.00 to 20.00
New York, deal.	15.00 to 15.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 13.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	18.50 to 19.50
Chicago, iron	14.50 to 15.00
Chi., rolled steel	19.00 to 19.50
Cincinnati	12.50 to 13.00
Eastern Pa. cast	16.50 to 17.00
Eastern Pa., rolled	19.00
N. Y., iron, deal.	12.50 to 13.00
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	22.00 to 22.50
St. Louis, iron	15.00 to 15.50
St. Louis, steel	17.00 to 17.50

No. 1 CAST SCRAP

Birmingham, cup.	14.00 to 14.50
Buffalo	16.00 to 17.00
Boston, textile	13.50 to 14.50
Chicago, mach.	17.90 to 18.50
Chicago, railroad	16.80 to 17.35
Chicago, agri.	16.25 to 16.80
Cincinnati, mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	16.50 to 17.00
Detroit, net	13.00 to 13.50
East. Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	13.00 to 13.50
N. Y., del. local foundries	17.00 to 17.50
Pittsbugrh, cupola	15.50 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	16.00 to 16.25
St. L. No. 1 mach.	15.50 to 16.00
St. Louis, No. 1	15.00 to 15.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	13.00 to 13.50
Cleve., breakable	12.50 to 12.75
Detroit, auto., net	18.00 to 18.50
Detroit, breakable	9.50 to 10.00
Eastern Pa.	15.75 to 16.00
New York, deal	11.75 to 12.50
Pittsburgh	13.00 to 14.00

MALLEABLE

Boston, railroad	16.50 to 17.00
Buffalo	18.00 to 19.00
Chicago, agri.	15.50 to 16.00
Chicago, railroad	18.50 to 19.00
Cinn., R. R., deal.	15.50 to 16.00
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	16.00 to 16.50
Detroit, auto	14.00 to 14.50
St. Louis, rail	16.50 to 17.00

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	14.00 to 15.00
Boston, dealers	12.25 to 12.50
Rails scrap, Boston	11.00 to 12.25
Skeleton, Boston	9.00 to 9.50
Buffalo	16.00 to 16.50
Chicago	17.50 to 18.00
Eastern Pa.	18.00 to 18.50
New York	14.00 to 14.50
Pittsburgh district	18.00 to 18.50
St. Louis	16.00 to 16.50

LOCOMOTIVE TIRES

Chicago, cut	19.00 to 19.50
St. Louis, No. 1	15.50 to 16.00

LOW PHOS. PUNCHINGS

Chicago	18.00 to 18.50
Pittsburgh	21.00 to 21.50

local dealers' buying prices have been advanced in a few instances. A feature is the appearance again of some demand from western Pennsylvania. A Weirton, W .Va., consumer purchased some mixed borings and turnings and heavy melting steel, on which dealers are covering at $12.50 and $18.75, respectively, delivered. This Weirton consumer is also understood to have taken at least the major portion of the steel scrap offered recently by the Pennsylvania railroad, its price reported as being around $19.10, delivered. Worth Steel Co., Claymont, Del., is said to have purchased No. 1 railroad at around $17, delivered. Alan Wood Steel Co., Ivy Rock, Pa., has purchased a moderate tonnage, including mixed borings and turnings.

Buffalo, March 26.—Advance in pig iron prices will result in higher scrap values, dealers predict. All new sales of No. 1 heavy melting steel have been made around $17.75, delivered. Dealers will pay $14.75 for No. 2 steel. One purchase of No. 1 included hydraulic compressed sheets and No. 1 busheling at $1 under the contract price for the former material.

Pittsburgh, March 26.—Iron and steel scrap continues strong although there is little mill buying. Most consumers are not supplied far ahead and additional purchases are looked for soon. Dealers find no surplus and on some grades a scarcity is appearing. Dealers are offering as high as $19 for heavy melting, but the market is not quotable higher than this figure due to a lack of sales.

Cleveland, March 26. — Consumer buying of scrap continues at low ebb. Dealers' short orders have been well covered and their buying is confined to small orders. Scrap is plentiful and supplies are coming out freely. Dodge is offering 4500 tons for April, Buick 3500 tons, and various other automotive lists are correspondingly heavy. In the meantime, prices hold to their former level. In the Youngstown territory, however, heavy melting steel has reached 50 cents a ton to $17.50 to $18 and compressed sheets have gone down $1 to $17 to $17.50.

Cincinnati, March 26.—The iron and steel market continues weak. Railroad malleable shows some strength, prices having increased 25 cents. Offsetting this increase is a drop of 25 cents in heavy melting steel and No. 2 railroad wrought.

St. Louis, March 26.—The break in southern pig iron has had no perceptible effect on the iron and steel scrap market here. Prices generally hold firm, the only changes noted being adjustments rather than actual variation in values.

Birmingham, Ala., March 26.—No change in quotations for iron and steel scrap are announced, heavy melting steel bringing $10.50 to $12.50 and even more, there being good demand for best quality.

Philadelphia, March 26.—Dealers in some cases are paying higher prices for scrap than stipulated in old contracts. They are offering $17, delivered, and higher for No. 1 melting steel, $13 for stove plate and $11.50 for turnings. The total amount of scrap bought at these prices is not large and consumers have not paid any advance over recently prevailing prices.

Detroit, March 26.—Within the past week demand for iron and steel scrap has improved noticeably, the call being especially strong from Cleveland and Pittsburgh mills. No. 1 heavy melting steel has advanced to $14.25 to $14.50 and loose sheet clippings to $9.50 to $9.75, all other items remaining unchanged. Negotiations are now being made for lake shipment of scrap, probably starting within 30 days.

Semifinished Steel

Market Continues Strong—New Contracts on Higher Basis

SEMIFINISHED STEEL PRICES, PAGE 870

Pittsburgh, March 26.—The semifinished market presents a strong tone sustained by continued high operations of finishing mills and lack of large supplies of billets, slabs and sheet bars. A number of second quarter contracts have been placed at the higher prices announced for that period, but steel producers are not anxious to take business from other than regular customers as their own operations have been restricted by lack of steel. Specifications still are being received against first quarter contracts which do not expire until the end of this month. Mills are permitting no overspecifying but full quotas are expected to be taken. Prices continue firm at $34 for 4 x 4-inch rerolling billets and slabs, and $35 for sheet bars. Wire rods continue $42.

Chicago, March 26.—March figures on semifinished steel production in this district are expected to a show a record. Rerolling billets are steady at $35, base, Chicago.

It is reported a consumer of semifinished steel here is buying material from western Pennsylvania and Alabama mills.

Youngstown, O., March 26.—The semifinished steel situation appears tighter, with the partial wrecking of a blooming mill in an important consumer plant in the Cleveland district which is calling for supplementary supplies from the Chicago and Pittsburgh district. Sheet bars especially are scarce, leading to restriction this week of certain important independent tin mill and sheet units here. Billet scarcity also is limiting strip and bar mill production. Sheet bars are firm at $35, Pittsburgh and Youngstown; billets and slabs $34, same basis, and wire rods $42, Pittsburgh and Cleveland. Manufacturers' wire demand is growing.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Tons

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.50
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	13.00

Pig Iron

(*Concluded from Page* 871)

The Allis-Chalmers Mfg. Co. closed for 4000 tons of foundry and malleable, divided among three sellers. The Oliver Chilled Plow Works, South Bend, Ind., purchased 2000 tons of foundry iron, and a lower Michigan melter bought 3000 tons of malleable.

St. Louis, March 26.—Buyers and sellers of pig iron in this district were disturbed by the decline in southern foundry to $15.50. Sales of pig iron in the St. Louis district totaled close to 35,000 tons in the past week. Included were two lots of basic, one of 15,000 tons, and the other 5000 tons, sold to east side mills by the St. Louis Gas & Coke Co. for second quarter. This business was at the old price. Stove, implement makers and jobbing foundries purchased about 10,000 tons.

Birmingham, Ala., March 26,—Lower pig iron prices have not brought out the volume of business expected. However, considerable iron has been sold for second quarter, and indications are the melt will be larger than in the first quarter. A return to a higher price basis is possible in the near future as $15.50, base Birmingham, is not profitable. Production is steady, with 13 blast furnaces on foundry iron, five on basic and one on a special brand.

Philadelphia, March 26.—Additional basic iron was sold in the past week, making more than 30,000 tons of this grade bought by consumers in this district in the past two weeks. Considerable more basic is expected to be closed in the next few weeks. This grade continues $20.25 to $20.50, delivered in this district. New business in foundry iron is fair mainly in small lots. Some makers are advising customers the price will be raised 50 cents. Eastern Pennsylvania foundry iron is firm at $21, base, furnace. The Washington navy yard is inquiring for 900 tons of low phosphorus iron and 90 tons of No. 1X. The American Engineering Co., Philadelphia, wants a round tonnage of foundry iron. Virginia foundry iron has been reduced 50 cents as a result of the $1 reduction at Birmingham.

Boston, March 26.—Buffalo iron is being offered at $19 to $19.50, base. Alabama iron is $1 lower. Two Buffalo furnaces are out of the market. The Mystic Iron Works reports sales of 4000 tons for the past week, all for New England consumption.

Bars

Heavy Demand Continues and New Records Impend—Second Quarter Specifications Coming in

CONSUMPTION of soft steel bars by industry generally has brought some new records within reach. Mills are booked heavily and no recession has appeared to decrease the burden. Deliveries continue far behind. Specifications are being filed against second quarter contracts and the new price is generally observed. Small buyers are paying premiums.

BAR PRICES, PAGE 869

Chicago, March 26.—Indications are that shipments and production of bars and other finished products in March may shatter all previous records. An unusual combination of heavy specifications and sales developed in the past week, one producer reporting the heaviest specifications since the week of Feb. 4, 1921. That substantial new business is being closed is indicated by the fact that sales in the seven-day period just ended are reported the third heaviest this year. Mills are well booked through April and May and into June. Some estimates are that ingot capacity of the district is sold up to July 1. Bar deliveries are extended fully as much as plate shipments, or 12 weeks for some sizes. Reports from implement works are that production the first two months this year was 50 per cent over last year, and implement exports are double last year.

Soft steel bars are quoted at 2.05c to 2.15c, with customary tonnage differentials to preferred industries. In view of vigorous specifications the market has taken on steadiness.

New York, March 26.—Some buyers have begun to specify against second quarter contracts for steel bars. Such specifying has not assumed great volume, but is sufficient to indicate the runover from first quarter will not take care of any large percentage of the second quarter requirements. As a matter of fact, now that first quarter is virtually at an end as far as new tonnage in connection with first quarter contracts is concerned, it becomes apparent that the runover from first quarter contracts will not occupy mills past April, while some mills expect to complete shipments against first quarter contracts by April 15. The market now is indicated by a range of 1.95c to 2.05c, base, Pittsburgh, equivalent to 2.29c to 2.39c, delivered New York, and differentials under the minimum price in this range are few in this territory.

Pittsburgh, March 26.—Most consumers of hot rolled merchant bars have signed contracts for second quarter, and the new 1.95c price is well established. Purchasers of small tonnages of an undesirable nature have been forced to pay 2.00c. Most buyers, however, obtain material at 1.95c. Specifications have been active despite the closing out of first quarter contracts March 15, since mills accepted business after that date from fabricators who had received the 1.90c price on pending business. Mill operations continue heavy but deliveries still are deferred three to four weeks on average sizes.

Cleveland, March 26.—Outside mills now generally are quoting soft steel bars at 1.95c, Pittsburgh, or 1.95c to 2.00c, delivered, against local competition. Most Cleveland mill quotations are 1.95c, base, Cleveland. Some automotive users' specifications are lighter, due to the accumulation of adequate stocks for spring retail selling, but on the whole bar demand is at a record level. March probably has been the best bar month in the district's history.

Philadelphia, March 26.—Specifications against second quarter bar contracts already are coming to mills in fair volume. Owing to the extent to which first quarter shipments will extend into the second quarter, however, there is not much prospect for immediate active specifying. The current market is 1.95c to 2.05c, base, Pittsburgh.

Buffalo Schedule Heavy

Buffalo, March 26.—Production of steel continues at the top rate of the year, with open hearth operations as near capacity as physical conditions will permit. Nearly all departments of steelworks are scheduled heavily and buyers are pressing for shipments.

Plates

Carbuilders and Railroads Taking Large Tonnages—March Business Sets New Record

PLATE demands are holding up well, March output and shipments by Chicago district mills are reported to have surpassed all previous records. Carbuilders there are specifying 25,000 tons weekly. Railroads are inquiring for second quarter requirements, a large tonnage pending for the New York Central and Erie cars. Contracts being closed at higher prices than those of first quarter.

PLATE PRICES, PAGE 869

New York, March 26.—Good inquiries and orders feature the plate market. Albany will open bids April 1 on a pipe line requiring about 14,000 tons of plates. The Export Steamship Corp. is expected within the next few days to place an order for four large vessels. J. F. Murphy is low bidder on the general contract for constructing a pipe line in the borough of Queens, to require about 2700 tons of plates. Plans now are being prepared for another pipe line in the borough of Queens. E. I. Du Pont de Nemours & Co. Inc. are in the market for a 24-inch pipe line at Charleston, W. Va., to require about 5400 tons of plates. The Erie, Lehigh Valley and Lackawanna railroads are taking prices on their requirements for second quarter. The New York Central railroad is inquiring for 2500 tons of plates, shapes and bars. A large tonnage of plates is involved in the car inquiries of the New York Central and Erie railroads. A few contracts for second quarter have been signed at an advance of $1 a ton over the first quarter. The current market is 2.00c to 2.15c, base, Coatesville.

Pittsburgh, March 26.—Additional steel barge awards feature new plate business. Recent orders for barges include 4000 tons of plates and shapes. Demand for material for miscellaneous purposes is fairly active. Some contracts for second quarter have been signed, although a number of large users have not closed. The 1.95c price has not been fully tested here, although some business has been placed at that figure.

Chicago, March 26.—Operations of all plate mills in the district, including South Chicago, Indiana Harbor and Gary, are at full capacity. Carbuilding specifications increased sharply in the past week, and now are above a weekly rate of 25,000 tons. Buyers have been anticipating their specifications, but the pressure to enter shipping orders has been such that numerous consumers are being disappointed in delivery dates. The fact that oil tankage is light relieves the situation. Only small miscellaneous oil tonnages were booked during the week. It is understood the second unit of the Empire Oil & Refining Co.'s refinery works at East Chicago, Ind., calling for about 8000 tons, will not be placed for several months. Mills are seeking to accom-

modate all customers inside of 12 weeks on deliveries. March output and shipments are believed to have set a record for all time.

Philadelphia, March 26.—Heavy plate specifications feature the close of the first quarter. Eastern mills are busier than at any previous time since the war. New orders are taken at 2.05c to 2.15, base, Coatesville, although in some instances first quarter prices have been extended through second quarter.

CONTRACTS PLACED

3000 tons, plates and shapes, 30 deck barges for unstated buyer; to Pittsburgh builder.
1000 tons, by Pacific Car & Foundry Co., Seattle. Divided between Pacific Coast Steel Co., Seattle, and eastern producers.
900 tons, six coal barges for Island Creek Coal Co., Huntington, W. Va.; to Dravo Contracting Co.
300 tons, plates and shapes, two fuel barges for Wheeling Steel Corp.; to Midland Barge Co.
187 tons, plates and shapes, gates for Lock No. 2, Monongahela river; to Independent Bridge Co.
100 tons, plates and shapes, eight pontoons for United States engineers, Louisville district; to Midland Barge Co.

Bolts, Nuts, Rivets

Second Quarter Needs Well Covered and Price Is Established

NUT AND BOLT PRICES, PAGE 870

Pittsburgh, March 26.—Second quarter contracting for bolts, nuts and rivets is well advanced and bookings are in good volume. Practically no opposition has arisen to 3.10c, Pittsburgh, on large rivets and the market is well established at this level, which represents a $2 advance over first quarter. Bolts and nuts are unchanged at 60 to 70 off. Specifications are active and demand shows a fair gain over February. Operations of leading producers have been advanced and now are close to 75 per cent.

Chicago, March 26.—March specifications for bolts, nuts and rivets showed a slight gain over February. Specifications are holding up well but are not increasing. Bolts and nuts are 60 to 70 off.

Form New Scrap Firm

The Newman Iron & Steel Co., with headquarters at 1370-1372 Hanna building, Cleveland, has been organized to handle iron and steel scrap and kindred products. The company has been incorporated and will commence to operate April 1. B. L. Newman, formerly in charge of the Cleveland territory for the Ohio Iron & Metal Co., Chicago, with headquarters at 1106 Hanna building, is president and treasurer. Guy Shapiro, affiliated with Mr. Newman for the past five years, is vice president of the new company. It is understood that the Ohio Iron & Metal Co. will discontinue its Cleveland headquarters but all unfilled scrap contracts will be fully liquidated by the new company.

Pipe

French Mills Nose Out Domestic —Several Municipalities Buy— Albany Wants 30,000 Tons

UNDERBIDDING domestic pipemakers by about $2 a ton, French sellers were awarded several lots, the largest being 2600 tons. Several other lettings went to domestic mills, involving 700, 750, 1300 and 1500 tons. Albany, N. Y., wants 30,000 tons and New York city tabulates bids on 12,005 tons. Mechanical and boiler tubing demand is up at Pittsburgh.

PIPE PRICES, PAGE 870

New York, March 26.—Cast pipe demand continues sluggish, but with between 2000 and 5000 tons of 4 to 16-inch gas and water pipe placed. Albany, N. Y., is inquiring for approximately 30,000 tons of 48-inch pipe. Bids on 12,005 tons of cast pipe by the local department of water supply, gas and electricity revealed moderately firm prices. However, these prices in all instances are not truly indicative as some items called for special lengths and others for lugged pipe and still others for both. Further, a reduction of $1 to $2 a ton must be allowed for delivery and stacking at city yards. The bids follow: Borough of Queens, 2510 tons of 4 to 30-inch, mostly 8 and 12-inch, Donaldson Iron Works low with $43.50, followed by the Warren Foundry & Pipe Co., with $43.90; Bronx, 3335 tons of 6 to 12-inch, mostly 8 and 12-inch, Warren $42.10, United States Cast Iron Pipe & Foundry Co. $42.35, R. D. Wood & Co. $43.25; Brooklyn, 1220 tons of 8, 12, 16 and 20-inch, United States $41.90, and Wood $43.45; Brooklyn, 3190 tons of 6 and 8-inch, Wood $43.45, United States $43.80, this latter tonnage involving two sections; Manhattan, 200 tons of 12-inch, Wood $43.45, United States $43.80, and Donaldson $44.50; and Richmond, 1550 tons of 6 and 8-inch, United States, $44.40, and Wood $44.75.

Boston, March 26.—Sharp foreign competition by French pipemakers resulted in a temporary easing off in prices the early part of last week. These became firmer this week and for 4-inch pipe $47.60 now rules; 4 to 12-inch, $43.60 to $44.10; 16 to 20-inch, $42.60 to $43.10. These prices include the usual $3 differential on class A and gas pipe. Warren Foundry & Pipe Co. sold 1500 tons to Brockton, while Worcester bought 750 tons from R. D. Wood & Co., Newton, Mass., closes bids March 29 on 200 tons of 6-inch.

Pittsburgh, March 26.—Producers of seamless pipe for oil country use are noting some effects from the movement to curtail drilling operations, although a fairly steady demand still is being received from this field. Welded material holds to its previous slow pace. Of all tubular products, mechanical tubing and boiler tubing are receiving the best attention and specifications from automotive interests continue heavy. Locomotive tubes also are more active than was true a year ago. Line pipe business is slow to close and several large lines, pending for some time, remain open. Operations are unchanged with welded pipe production averaging around 50 per cent and seamless output from 75 to 90 per cent.

Youngstown, O., March 26.—Bids have been opened by W. H. Dittoe, chief engineer, Mahoning sanitary-water district, on gate valves for the pipe lines for the proposed Niles-Youngstown water supply. Bidders and their bids follow: Kennedy Valve Mfg. Co., Elmira, N. Y., $40,330.62; Michigan Valve & Foundry Co., Detroit, $48,124.50; Rensselaer Valve Co., Troy, N. Y., $49,917.35; and the Ludlow Valve Mfg. Co., Troy, N. Y., $52,540. Only one bid, that of the Rensselaer company, $5000, was received on the air valves.

Cleveland, March 26.—Jobber orders for buttweld pipe are increasing slightly as weather conditions improve and bring about a better turnover. Lapweld orders are not so numerous here. Mills in the Youngstown, O., territory have had a better quarter than in the first three months of 1928.

Chicago, March 26.—Cast iron pressure pipe orders are more numerous in the north central markets, particularly in Chicago and Detroit. In addition to numerous contracts of several hundred tons each, several larger projects are pending, to be awarded soon through contractors. A gas company purchased 1400 tons of cast pipe in the local market during the week. Park Ridge, Ill., took bids yesterday for 650 tons of 6 to 12-inch pipe. Pontiac, Mich., has awarded 2600 tons of 6 to 16-inch pipe to sellers of French pipe, on the basis of $34.30, Birmingham. Roseville, Mich., took bids yesterday on 650 tons of 6 to 12-inch pipe. About 1300 tons of 6 to 16-inch pipe has been awarded by St. Paul.

Birmingham, Ala., March 26.—Additional specifications are reported and new lettings for cast iron pressure pipe are expected here.

CONTRACTS PLACED

2600 tons, 6 to 16-inch pipe for Pontiac, Mich., to sellers of French pipe, on the basis of $34.30, Birmingham.
1500 tons, 24-inch pipe, Brockton, Mass., to Warren Foundry & Pipe Co.

1300 tons, 6, 8, 12 and 16-inch centrifugal pipe for St. Paul, to United States Cast Iron Pipe & Foundry Co.
750 tons, 6 to 24-inch pipe, Worcester, Mass., to R. D. Wood & Co.
700 tons, 6 and 8-inch Monocast, for Sanich, B. C., to American Cast Iron Pipe Co.
596 tons, 4 to 12-inch class 150, Anukini, T. H., to American Cast Iron Pipe Co.
500 tons, Tacoma, Wash., project by S. Moceri, general contractor, to French producers.
500 tons, Twenty-third avenue, West, Seattle, by G. Argentieri, general contractor, to French producers.
300 tons, Thirty-first avenue, South Seattle, by G. Argentieri, general contractor, to French producers.
100 tons, 8-inch for Alonzo avenue, N. W., Seattle, by S. Moceri, general contractor, to French producers.

CONTRACTS PENDING

30,000 tons, approximately, 48-inch cast pipe for Albany, N. Y.
12,005 tons, 4 to 30-inch cast pipe, department of water supply, gas and electricity, New York, Donaldson Iron Works, Warren Foundry & Pipe Co., United States Cast Iron Pipe & Foundry and R. D. Wood & Co., low bidders; bids also are open on miscellaneous tonnage of fittings.
2217 tons, 16 to 30-inch class B, Los Angeles. Bids received.
1420 tons, 6 and 8-inch class C pipe for Roseville, Mich.; bids March 25.
1400 tons, cement-lined cast pipe, Newark, N. J.
Six miles, 6, 8, and 10-inch class B pipe, Dundee, N. Y.
667 tons, 4 to 12-inch class B, improvement Tweedy Park, South Gate, Calif. Bids March 26.
650 tons, 6, 8 and 12-inch pipe for Park Ridge, Ill.; bids March 25.
494 tons, 2 to 12-inch class B, improvement State street, South Gate, Calif., to H. H. Walker, Los Angeles, general contractor.
404 tons, 6 and 8-inch class B, Sacramento, Calif. Bids received.
324 tons, 10 to 20-inch class B or centrifugal, Wenatchee, Wash. Bids received.
300 tons, 8-inch class B pipe, Camp Devins, Mass., bids opened.
Small but unstated tonnage, 6-inch water pipe, Batavia, N. Y., bids opened April 3.
525 tons, 6 to 12-inch class C pipe, Bloomfield, N. J., new bids asked; also new bids on 22 tons of fittings.
200 tons, 4-inch pipe, Newton, Mass., bids to close March 29.
200 tons, odd sizes of cast pipe and fittings for De Kalb, Ill., sewage treatment works, general contract to Union Construction Co., which will purchase pipe.
124 tons, 4 and 6-inch Class 150, Whittier, Calif., to United States Cast Iron Pipe & Foundry Co.
120-tons, 6-inch class B, Astoria, Oreg. Bids received.

Tin Plate

Purchasing Resumed on Large Scale—Orders Ahead of 1928

TIN PLATE PRICES, PAGE 869

Pittsburgh, March 26.—Mills have received practically all specifications from large tin plate consumers for May requirements. Buying is active and some mills have sufficient business in sight to insure heavy operations over the next two months. A number of large buyers have specified more tonnage than a year ago, and the total business so far this year is ahead of 1928. Future requirements of canmakers, the leading consumers of tin plate, will depend in a large measure on weather conditions and the packs of several vegetables. Operations hold at 90 per cent. Tin plate continues $5.35 per 100-pound base box, Pittsburgh.

Sheets

Automotive Industry Continues to Take Heavy Tonnages—Consumers Specifying Far Ahead

SHEET consumers are specifying heavily on second quarter contracts, as deliveries are far deferred. Leading producers report there is no diminishing in total orders from the automotive industry, gains from some makers neutralizing losses from others. March operations in the Pittsburgh district approximate the highest record. The new prices are being tested.

SHEET PRICES, PAGE 869

Pittsburgh, March 26.—Sheet specifications are smaller than a week ago when consumers were active in closing out first quarter contracts. The volume of business, however, has been heavy, and approximates production. Current orders are being placed at the new and the old prices, some of the latter representing railroad car material on which buyers were protected. A number of contracts have been signed on which new second quarter prices are applied. Demand from automotive interests shows no letup and the buying rate of other leading consuming lines generally is unchanged. Mill operations are maintained at close to capacity and March will approximate, if not exceed, the record. The March 15 deadline for specifications against first quarter contracts generally was observed, and any exceptions were for small lots to be shipped at mills' convenience. On new orders mills are quoting 2.95c, base, Pittsburgh, for sheet mill black, 3.00c for tin mill black, 3.70c for galvanized, 2.20c for blue annealed, and 4.10c for autobody. These prices are expected to receive a thorough test within the next few weeks.

Buffalo, March 26.—Demand for sheets continues strong. Some users of automobile body sheets are placing orders for July delivery. This grade is 4.365c, Buffalo. District sheet mills are operating at 90 per cent.

Youngstown, O., March 26.—Sheet specifications continue to pour into local mills. One important mill last week was compelled to refuse the largest aggregate of new specifications ever offered by consumers in its history. Another leading maker is booked ahead on certain sizes for 16 weeks. Despite every effort to get sufficient supplies of sheet bars, independent sheet mills this week have been forced to curtail output, going down to 90 per cent of capacity, against 98 per cent last week. Large tonnages of common and full-finished sheets have been placed with local mills for second quarter delivery at the advanced prices of 2.95c, Pittsburgh, for common black, 3.70c for galvanized, 2.20c for blue annealed, and 4.10c for autobody.

New York, March 26.—Sheet buyers have started to specify shipments against second quarter contracts. The runover from first quarter contracts will not care for requirements generally. Mills followed the policy of observing March 15 as the final date for booking specifications against first quarter contracts, although there are a few exceptions where tonnage will be taken up to the end of the month. Mills have order books providing for full rollings for four to six weeks.

New York Central railroad is asking bids on 350 tons of sheets for second quarter. The state of New York is expected soon to inquire for its seasonal requirements for automobile license tags.

Cleveland, March 26.—Pressure for sheet deliveries is more pronounced. Sheetmakers are unable to supply the increased demands of their regular customers. Users without regular sources of supply are endeavoring to locate material. Prices are firm. Several large mills are enjoying the best month in six or seven, heavy specifications against first quarter contracts prior to the price rise being responsible. Coverage for second quarter is practically complete. Shipments of the higher finishes are deferred up to ten weeks, and second quarter specifications are flowing in. Automotive demand is unabated.

Chicago, March 26.—Sheet deliveries are beginning to lengthen. Mills are unable to make better than four to five weeks' deliveries on some sizes and gages of black, galvanized and blue annealed. Specifications are piling up, despite only moderate efforts to book business because of the tight semifinished steel situation. The recent extension of blue annealed sheet prices has disappeared, mills state, and prices now are on the basis of 3.10c for No. 24 black, 3.85c for No. 24 galvanized, and 2.35c for No. 10 blue annealed.

St. Louis, March 26.—Improvement is noted in demand for sheets. Sales in the first half of March exceeded those of the same period in February, also the corresponding period a year ago. Galvanized sheets are firmer, the delivery price here having been raised to 4.02c.

Philadelphia, March 26.—With buyers taken care of, by reason of recent heavy specifications, for black and galvanized sheets, not much new business is noted. Many buyers contracted for second quarter at the new prices, 2.95, base, Pittsburgh, for black, and 3.75c for galvanized. Blue annealed sheets show a price range of 2.10c to 2.20c, base, Pittsburgh.

Structural Shapes

New York Leads Country in Buildings Awarded—Other Sections Have Much Work Up—Specifications Active—Prices Firm

BUILDING activity in New York and other eastern sections affords a bright contrast to dullness pervading other sections. Large tonnages let there involving 15,000, 13,000, 8000 and 5000 tons respectively, make up for delays in connection with large projects in Cleveland and elsewhere. A few sizable jobs let each week maintain the weekly average for this year at about 1000 tons below the weekly average for all of 1928. So many large jobs are immediately ahead of fabricators, however, that they believe this figure soon will climb to last year's weekly aggregate, and then exceed it. Road, bridge and subway work promise much steel. Mills report continued contracting at the new figure. Specifications have been active to close out first quarter arrangements.

STRUCTURAL SHAPE PRICES, PAGE 869

New York, March 26.—Awards of 13,000 and 5000 tons for an office building for the American Exchange-Irving Trust Co., and a loft building for Central Zone Inc. are outstanding in local structural buying. Another large project, the office building for the Ohrstrom banking interests, 30 Wall street, 15,000 tons, went to Levering & Garrigues Co. Another loft building, let, takes 1000 tons. Inquiries are led by the issuance of specifications for the municipal roadway along the west side of Manhattan island, requiring 22,000 to 23,000 tons.

Boston, March 26.—Structural awards continue limited, totaling a little more than 500 tons. Of this 230 tons is for two bridges for the Boston & Maine railroad, and 290 tons will go into a new administration hospital building, for Boston.

Philadelphia, March 26.—The recent $1 advance in structural shapes is reflected in that some small orders of the past week brought 2.05c, base, eastern mill, which previously had been bringing 2.00c. On the other hand, some important consumers in this district have received no notification of an advance and so expect to obtain their second quarter requirements at unchanged prices. The shape market now is 1.95c to 2.05c, eastern mill, subject to diffierentials on large tonnages.

Pittsburgh, March 26.—Demand for plain structural material is slow to assume its normal upward trend at this period. Fabricators are fairly well engaged but lack substantial backlogs. Inquiry is spotty and slow to expand. A fair volume of work is pending but few large awards are noted. Some contracts have been signed for second quarter for plain material but the new 1.95c, Pittsburgh, price as yet has not been thoroughly tested.

Cleveland, March 26.—Structural awards are light. The East 105th street bridge was let to American Bridge Co. and a plant for the Liquid Carbonic Co. to Pittsburgh Bridge & Iron Co. These involve 250 tons and 210 tons, respectively. Bids on the junior high school at Toledo, O., were rejected as being higher than the appropriation. Plenty of work is pending here but some legal obstacles were encountered in connection with three or four large civic jobs to involve possibly 25,000 tons of steel. Bids are being taken on 3750 tons for the Monroe, Mich., plant of the Newton Steel Co. The Ecorse, Mich., plant of the Great Lakes Steel Corp. is expected to take 20,000 tons. Mills report good specifications against expiring contracts and while new business is off a trifle, shipments are heavy. Plain material has been placed at 1.95c, Pittsburgh.

Chicago, March 26.—Shape deliveries, in line with bars and plates, are backing up. Structural mills, particularly those rolling other materials with shapes, are four to six weeks behind on shipments. Sharp increases in car building specifications are responsible. Despite the drop in general building work, a gain of as much as 35 per cent is noted in certain types of construction effort in larger centers, notably in industrial buildings. Mills are fairly well booked through April and May, and June tonnage already is coming on the books. Owing to the mill situation heavy building work at present would necessarily be delayed. The market is steady at 2.05c to 2.15c, Chicago, with the usual differentials for desirable quantity orders.

Awards Compared

	Tons
Awards this week	59,635
Awards last week	47,854
Awards two weeks ago	33,471
Awards this week in 1928	25,711
Average weekly awards, March	49,223
Average weekly awards, 1928	39,082
Average weekly awards, 1929	38,327
Total awards to date, 1928	545,252
Total awards to date, 1929	498,252

CONTRACTS PLACED

15,000 tons, office building, Ohrstrom banking interests, 36 Wall street, New York, to Levering & Garrigues Co.

13,000 tons, office, for American Exchange-Irving Trust Co., 1 Wall street, New York, erection to Post & McCord; fabrication to American Bridge Co.

8000 tons, pier shed, Western Maryland railroad, Baltimore, to American Bridge Co. through Northeastern Construction Co.

5000 tons, loft for Central Zone Inc., 305 East Forty-fifth street, New York, awarded through H. I. Osher, to Taylor-Fichter Steel Construction Co.

2500 tons, building, Caterpillar Tractor Co., Peoria, Ill., to Illinois Steel Bridge Co.

2000 tons, plant for Glenn L. Martin Co., Baltimore, to McClintic-Marshall Co. Listed as 1550 tons in IRON TRADE REVIEW of Feb. 28.

1800 tons, cable plant, Western Electric Co., Chicago, to American Bridge Co.

1505 tons, Spokane street bridge superstructure, Seattle, to Wallace Bridge & Structural Steel Co.

1400 tons, by-product coke plant at Coatesville, Pa., for International Combustion Engineering Corp., to Jones & Laughlin Steel Corp.

1100 tons, Martha mills, Goodrich Tire & Rubber Co., Thomaston, Ga., to Virginia Bridge & Iron Co. through Batson-Cook Co.

1000 tons, by Pacific Car & Foundry Co., Seattle. Divided between Pacific Coast Steel Co., Seattle, and Eastern producers.

1000 tons, loft, 323 West Thirty-eighth street, New York, to Taylor-Fichter Steel Construction Co.

700 tons, power house, El Paso Electric Co., El Paso, Tex., to Virginia Bridge & Iron Co.

675 tons, building, National Title bank, 185 Montague street, Brooklyn, N. Y., to George A. Just Co.

550 tons, Abraham Lincoln hotel, Reading, Pa., to Lehigh Structural Steel Co.

500 tons, coal tipple Wildwood, Pa., for Butler Consolidated Coal Co., to John Eichleay Jr. Co.

500 tons, Hanover street bridge, Baltimore, to American Bridge Co., through J. L. Robinson.

450 tons, freight station and warehouse, Pennsylvania railroad, West Philadelphia, Pa., to Belmont Iron Works, leaving 1350 tons still pending for this job.

350 tons, office building, Swift & Co., Chicago, to American Bridge Co.

350 tons, including oil refinery buildings, 225 tons, Houston, Tex., and 125 tons at Sellers, La., for E. B. Badger & Sons, to Virginia Bridge & Iron Co.

300 tons, miscellaneous bridge work, Southern Pacific railroad, to Virginia Bridge & Iron Co.

290 tons, administration building, Mattpahan hospital, Boston, to New England Structural Co.

250 tons, plant, Western Electric Co., Emeryville, Calif., to Judson-Pacific Co.

250 tons, balloon flue, American Smelting Co., Eagle Pass, Tex., to Virginia Bridge & Iron Co.

250 tons, East 105th street bridge, Cleveland, New York, Chicago & St. Louis railroad, to American Bridge Co.

225 tons, Mad river bridge, Sacramento, Calif.; general contract to Butte Construction Co.; steel to unstated interest.

210 tons, plant, Liquid Carbonic Co., Cleveland, to Pittsburgh Bridge & Iron Works.

200 tons, airplane hangar, Pan American Airways, Inc., Mexico, to Virginia Bridge & Iron Co.

200 tons, Pennsylvania railroad produce stores, Washington, to Dietrich Bros., through M. A. Long Co.

200 tons, two bridges for Boston & Maine, to Boston Bridge Works.

190 tons, bridge, Norfolk & Western railroad, Wharncliffe, Va., to American Bridge Co.

185 tons, apartment, Buena Vista avenue, San Francisco, to Golden Gate Iron Works.

150 tons, medical school Georgetown university,

Washington, to Dietrich Bros., through Charles M. Tompkins.
150 tons, including 80-ton warehouse, C. M. Allen & Son, Birmingham, Ala., and branch building, 70 tons, Foster & Creighton, Birmingham, to Virginia Bridge & Iron Co.
150 tons, solvent recovery plant, Du Pont Engineering Co., Waynesboro, Va., to Virginia Bridge & Iron Co.
150 tons, clubhouse, 297 Dean street, Brooklyn, N. Y., and bank, Myrtle and Forest avenues, Ridgewood, L. I., to George A. Just Co.
140 tons, high school, Parkersburg, W. Va., to Pittsburgh Bridge & Iron Works.
115 tons, Artesia hotel, Pecos Valley Development Co., New Mexico, to Virginia Bridge & Iron Co.
100 tons, Fort Bayou bridge, Ocean Spring, Palcagula, Miss., to Nashville Bridge Co.
100 tons, supports, etc., Foster & Wheeler Co., Baton Rouge, La., to Virginia Bridge & Iron Co.

CONTRACTS PENDING

23,000 tons, Westside elevated roadway, New York; bids to be opened by the department of public works April 8.
20,000 tons (estimated) plant at Ecorse, Mich., for the Great Lakes Steel Corp., Detroit. Bids to be asked soon.
5000 tons, Rosenwald Industrial museum, Jackson park, Chicago. Old bids rejected. New bids asked.
4250 tons, column cores, Shroder & Koppel building, Canal street, New York, reported placed with independent fabricator.
3750 tons, plant at Monroe, Mich., for the Newton Steel Co., Newton Falls, O.
2500 tons, estimated, $1,000,000 headquarters building, board of education, Rockwell avenue, Cleveland. Walker & Weeks, Cleveland, selected as architects.
1100 tons, 19-story building, Shroeder & Koppel, 32 West Fifty-seventh street, New York.
1000 tons, miscellaneous bridge work, Chesapeake & Ohio railroad,
800 tons, 15-story apartment, Monroe place, Brooklyn, N. Y.
700-800 tons, junior high school, Toledo, O. Bids rejected. Plans to be revised and new bids asked later.
650 tons, apartment, 1301 Astor street, Chicago. Bids March 30.
500 tons, substation work for board of transportation, New York.
500 tons, Hanover street viaduct, Western Maryland railroad, Baltimore. Board of estimates approved recommendation of Howard R. Pratt, chief engineer that contract be let to J. L. Robinson Construction Co.
400 tons, St. Joseph's hospital addition, Providence, R. I.
315 tons, 28-span bridge across Susquehanna river between York and Lancaster counties, Pennsylvania. Commissioners to let general contract April 9. James B. Long, Norristown, Pa., designer.
300 tons, Minnesota state highway bridge, American Bridge Co., low bidder.
250 tons, Mercy hospital, Canton, O., to cost $325,000. C. E. Firestone and L. Christman, architects, Renkert building, Canton, took bids March 15.
200 tons, bridge, Union county, New Jersey.
200 tons, bridges for Southern Railway.
200 tons, two bridges for Pennsylvania railroad, near Pittsburgh.
175 tons, state bridge, Utica, N. Y.
150 tons, settlement house, 11 Tileston street, Boston.
150 tons, additional, National City bank building, Pierpoint and Montague streets, Brooklyn, N. Y.
150 tons, garage, 152 East Eighty-seventh street, New York. J. H. Galloway, architect.
135 tons, grade separation, Railroad avenue, Los Angeles. Bids April 10.
105 tons, Milford bridge, contract No. 104-B, state highway department, Dover, Del. Bids April 29.
100 tons, school, West Twenty-first street and South Park avenue, Parma, O. Fulton & Taylor, architects, Cleveland, will take bids April 15.
100 tons, stores, Nashua, N. H.
Unstated tonnage, 3-story plant, Widlar Co., Berea road, Cleveland, to cost $250,000. Harlen E. Shimmin, 404 Bulkley building, Cleveland, architect, started to take bids.
Tonnage unstated, senior high school, Shaker Heights, O., to cost $1,150,000 and to be located at Onawah and Aldersyde drives. Hubbell & Benes, Cleveland, architects.
Unstated tonnage, addition, Hunter college, Bedford Park boulevard, Bronx, N. Y.

Concrete Bars

Few Attractive Lots Let—More Ready to Appear—Prices Stronger at Chicago

WEATHER improvement has brought about slightly increased concrete bar activity, with several attractive lots awarded. Inquiries are slowly taking form although much work is projected, including a 4000-ton bridge over the Susquehanna river. Prices are stiffening in Chicago. Increased levels at Pittsburgh and elsewhere have not really been tested.

REINFORCING BAR PRICES, PAGE 869

Chicago, March 26.—Billet reinforcing bar sellers are preparing to withdraw quotations April 1 on work pending up to March 15. Their quotations now are $1 a ton higher on new business. Thus the range on billet bars now is 2.35c to 2.40c, and rail steel bars now are quoted at 2.00c to 2.05c. Credits have tightened perceptibly on any building work which appears to be definitely speculative. An apartment house project of 850 tons is before the market. A fair amount of small business is reported.

Buffalo, March 26.—Nearly 1000 tons of new inquiry for reinforcing bars is before Buffalo sellers. Old inquiry is covered somewhat slowly but sellers expect a rush of orders early in April. Small lots are sold at 2.615c, delivered Buffalo jobs. Warehouses are receiving a good run of reinforcing bar orders.

Pittsburgh, March 26.—The $1 a ton advance for second quarter on concrete reinforcing remains untested. Mills are receiving business from distributors on jobs pending prior to the increase. Total business so far this month shows an increase compared with February. Awards in this district continue small, but pending business and new inquiry indicates a gradual expansion in building requirements. The market continues 2.25c to 2.30c, Pittsburgh, for cut lengths and 2.00c to 2.05c for stock lengths.

Awards Compared

	Tons
Awards this week	**6,500**
Awards last week	**6,930**
Awards two weeks og	**7,347**
Awards this week in 1928	**12,762**
Average weekly awards, March	**6,832**
Average weekly awards, 1928	**6,189**
Average weekly awards, 1929	**6,356**
Total awards to date, 1928	**86,297**
Total awards to date, 1929	**82,630**

CONTRACTS PLACED

1100 tons, Damen avenue bridge, Chicago, to Kalman Steel Co., previously reported to unstated fabricator.
800 tons, mail order store, Goldblatt Co., Chicago, to unstated fabricator.
675 tons, building, Cincinnati & Suburban Bell Telephone Co., Cincinnati, to Pollak Steel Co.
525 tons ramp garage, Jersey City, N. J., to Truscon Steel Co.
500 tons, Kill Van Kull bridge piers, Bayonne, N. J., to unidentified seller through P. T. Cox Contracting Co.
500 tons, Kill Van Kull bridge, connecting Bayonne, N. J., and Port Richmond, N. Y., to Truscon Steel Co., through Arthur McMullen Co.
400 tons, apartment 5528 Hyde Park boulevard, Chicago, to Calumet Steel Co.
400 tons, store at Dallas, Tex., Sears Roebuck & Co., Chicago, to Laclede Steel Co.
350 tons, work for United States engineers at Milwaukee, to Kalman Steel Co.
350 tons, United States postoffice building, Springfield, Ill., to Laclede Steel Co.
200 tons, Western Maryland railroad pier shed, Baltimore, to Truscon Steel Co.
200 tons, railroad construction work, A. M. Byers Co., Ambridge, Pa., to Carlem Engineering Co.
175 tons, road from Freehold to Eatontown, N. J., to Igoe Bros. through Jannarone Contracting Co.
150 tons, Wenatchee hotel, Wenatchee, Wash., to Pacific Coast Steel Co.
150 tons, Pennsylvania railroad Produce stores, Washington, to Dietrich Bros., through M. A. Long Co.
150 tons, Hanover street bridge, Baltimore, to Maryland Steel Products Co., through J. L. Robinson.
125 tons, Walter Reed hospital, Washington, to Concrete Steel Co., through Virginia Engineering Co.
125 tons, garage, Boston, to Kalman Steel Co.
120 tons, bridge work, state of Illinois, to American System of Reinforcing.
105 tons, warehouse, Fifteenth and Bryant streets, San Francisco, to Gunn, Carle & Co.
100 tons, city hall, Tacoma, Wash., to Pacific Coast Steel Co.
100 tons, Spokane street bridge, Seattle, to Pacific Coast Steel Co.
100 tons, school, Celeron, N. Y., to unnamed seller.
100 tons, caissons, Damen avenue bridge, Chicago, to Barton Steel Co.
100 tons, plant, Thompson Products Inc., Cleveland, to Bourne-Fuller Co.

CONTRACTS PENDING

3995 tons, 28-span bridge, Susquehanna river, between York and Lancaster counties, Pennsylvania. Commissioners to let general contract April 9. James B. Long, Norristown, Pa., designer.
2000 tons, Merchants Exchange building, Seattle. Bids invited.
850 tons, apartment, East Fifty-third street and Lake Michigan, Chicago.
750 tons, five bridges, state highway commission, Little Rock, Ark. Bids close March 29 on job No. 770.
430 tons, 2384 lineal feet, concrete deck girder bridges, Fulton-Texarkana road, state highway commission, Little Rock, Ark. Bids close March 29 on Job. No. 321.
160 tons, four barges for United States engineers, Wilmington district; bids closed March 25.
150 tons, Hanover street viaduct, Western Maryland railroad, Baltimore. Board of estimates approved recommendation of Howard R. Pratt, chief engineer that contract be let to J. L. Robinson Construction Co.
150 tons, store building, West Division street, Chicago.
125 tons, Mill Creek bridge, Salem, Oreg.; bids received.

The Market Section

Rails, Cars

Locomotive Orders Mount—Large Car Awards Expected—Rails Specified Freely

LOCOMOTIVE awards, numbering more than 85, loom importantly in railroad equipment buying. Cars in appreciable numbers are expected to be bought before week is out. A Mexican road closed on 1440. Rail specifications are more active and fastening orders increase. Several roads ask for bids on second quarter plate, shape and bar requirements.

RAILROAD TRACK PRICES, PAGE 870

Chicago, March 26.—Car building may be delayed by backward lumber shipments and to delays in getting deferred deliveries of steel castings and forgings. Delay of car shop programs would relieve western mills furnishing steel for cars awarded here. Northern Pacific cars, 1300, are expected to be awarded shortly and 2500 box cars for Chicago & North Western may be awarded late this week. National Railways of Mexico ordered 1440. Freight cars being awarded have an average capacity of 50 tons, as compared with retired units which average only 39.8 tons.

Track fastenings operations have reached almost capacity. About 5000 tons was placed last week and specifications jumped perceptibly. Western mills booked about 5000 tons of rails in small miscellaneous lots. About 40,000 tons in secondary tonnage was placed in the West during the past 10 days, including the western mills' share of the Southern and the Chicago, Milwaukee, St. Paul & Pacific tonnage. Chicago rail mill operations are at capacity.

New York, March 26.—Railroad purchases are topped by the closing of more than 80 locomotives, including 35 for the Erie, placed with the Lima and Baldwin Locomotive Works. Large freight car orders are on the point of being placed.

While New York Central was expected to close this week on 4300 freight cars, it now appears that action will be deferred for several days.

The New York Central railroad has put out inquiries to cover its miscellaneous steel requirements over the second quarter. They include 2500 tons of plates, shapes and bars and 350 tons of sheets. The Erie, Lehigh Valley and Lackawanna railroads also are taking prices on their second quarter requirements of commodities.

Specifications by eastern railroads for shipments against their 1929 rail contracts are exceedingly heavy and steel mills expect that, if the present rate is maintained as at present, the roads will have to place some secondary tonnages this year.

Cleveland, March 26.—Lima Locomotive Works, Lima, O., has orders on hand for 67 locomotives and 82 tenders. This is the largest order book it has had in several months. Plates are being ordered from the Otis Steel Co., here, the Lukens Steel Co., Coatesville, Pa., and from other makers.

Birmingham, Ala., March 26.—The Nashville, Chattanooga & St. Louis railroad has awarded the Pullman Car & Mfg. Corp. here 200 all steel hopper gondola cars. The Southern railway's order for 28,800 tons of 100-pound rail is to be rolled by the Tennessee Coal, Iron & Railroad Co. between April and June.

CAR ORDERS PLACED

Chicago, Rock Island & Pacific, 500 box car underframes and 100 ice car underframes to Bettendorf Corp.

Great Northern, five gasoline-electric rail motor cars, to St. Louis Car Co., to be equipped with Electro-Motive Co. power plants.

Hocking Valley, 100 flat cars, to own shops.

Nashville, Chattanooga & St. Louis, 200 all steel hopper gondolas, to the Pullman Car & Mfg. Corp.

National Railways of Mexico, 1200 40-ton box cars, to Pullman Car & Mfg. Corp., and 240 narrow gage miscellaneous freight cars to Standard Steel Car Co.

Northern Pacific, seven gasoline-electric rail motor cars, to St. Louis Car Co.; power plants to be supplied by Electro-Motive Co. It has doubled its inquiry for five mail-express cars, now asking for 10.

Trinity & Brazos Valley, three gasoline-electric rail motor cars, to Pullman Car & Mfg. Corp., with power plants to be supplied by Electro Motive Co.

LOCOMOTIVE ORDERS PLACED

Erie, 35 locomotives, 20 heavy freight engines going to the Lima Locomotive Works and 15 switch engines to Baldwin Locomotive Works; 15 extra locomotive tenders also placed with Lima.

Hamilton Coke & Iron Co., one locomotive, to Baldwin Locomotive Works.

Illinois Central, four electric 1200-horsepower locomotives to unstated manufacturer.

Illinois Terminal Railroad system, three locomotives, to Baldwin Locomotive Works.

New Cornelia Copper Co., six switch engines, to American Locomotive Co.

New York, Ontario & Western, 10 locomotives, to American Locomotive Co.

Tientsin Pukow Railway, China, 10 heavy locomotives, to Baldwin Locomotive Works.

Union railroad, 12 switch engines, to Baldwin Locomotive Works.

Western Pacific, five locomotives to American Locomotive Co.

CAR ORDERS PENDING

Chesapeake & Ohio, 577 steel gondola bodies.

Chicago & North Western, 28 suburban coaches.

Northern Pacific, 100 stock cars.

Northern Pacific, 100 stock cars, in addition to 1200 miscellaneous freight cars recently placed on inquiry.

LOCOMOTIVE ORDERS PENDING

Chicago & Illinois Midland, four locomotives.

1928 Pig Iron Total Was 37,401,648 Tons

New York, March 26.—Pig iron production in 1928 totaled 37,401,648 tons, contrasted with 35,858,232 tons in 1927, according to the American Iron and Steel institute.

Last year's output comprised 22,124,410 tons of basic, 9,013,847 tons of bessemer and low phos., 4,209,790 tons of foundry, 1,922,970 tons of malleable, 88,362 tons of forge, and 42,269 tons of all other classifications.

Ferroalloy production was 754,066 tons, compared with 707,413 tons in 1927. Last year's output included 419,213 tons of ferromanganese and spiegeleisen, 303,595 tons of ferrosilicon and 31,258 tons of all other ferroalloys.

Total pig iron and ferroalloy production was 38,155,714 tons in 1928, compared with 36,565,645 tons in 1927.

Rail production last year was 2,647,493 gross tons, against 2,806,486 tons the preceding year. Last year's total included 2,580,141 tons of open hearth, 2718 tons of bessemer, 64,196 tons rerolled, and 438 tons rolled from electric steel.

Chicago Approaches 98

Chicago, March 26.—All steelworks rolling mills in this district are engaged at practical capacity. These operations are limited only by the ability of semifinished mills to keep finishing mills supplied. While operations are little changed from a week ago, some estimates now are that Chicago district steelworks operations are close to 98 per cent. One producer has had all his open hearths melting continuously for several weeks, but it will be necessary to do repair work soon. Of the 36 steelworks stacks in the district, 29 are blowing. Sheet mill operations are limited slightly by inadequate supplies of ingot steel, and are at 80 to 85 per cent. Track fastenings departments are at capacity.

Pittsburgh Activity 95

Pittsburgh, March 26.—Steelmaking operations in the Pittsburgh district are fully 95 per cent of capacity, although lower operations in some departments offset capacity production in a number of other plants. Sheet and strip mills continue to operate full but pipe production still lags. Welded pipe is about 50 per cent with some mills as high as 60 per cent. Seamless production averages 75 to 90 per cent. Tin plate output is on a 90 per cent basis with some mills at capacity. Superior Steel Corp. has increased operations of its hot strip mills to two turns daily.

The Cleveland Pneumatic Tool Co., Cleveland, has received a trial order from the Junkers Airplane Works, Dessau, Germany, for three sets of pneumatic landing struts of shock absorbers.

Wire

Better Demand Experienced in All Lines of Products—Prices Are Holding Steadily

MOVEMENT of wire and its products has gained such momentum that record totals for several years seem likely to be set. Buying continues steady, especially by manufacturers, and demand for agricultural districts is increasing with the season. Second quarter contracts are practically finished. Prices are steady and no shading is encountered by sellers.

WIRE PRICES, PAGE 870

Chicago, March 26.—It is indicated that March specifications and shipments in wire products may set a record for three or four years. Further gains are noted in specifications for woven fencing, barbed wire and wire nails from the country districts, but the increase has been slow. Flooded conditions have had no appreciable effect on demand. It is expected the high waters in the South may bring about a temporary slack. Manufacturers' and merchants' wire continues in brisk demand. A good contract tonnage was entered during the week. Wire products are reported steady on the basis of 2.55c, Chicago or western mills, for bright plain wire, and $2.70 for wire nails, to large jobbers.

Worcester, Mass., March 26.—Wire buying continues steady and well spread, but little has been done on next quarter contracting. Business taken for this period, however, has been at firm prices on a basis of 2.75c, Worcester, to dealers. Consumers are taking supplies close to requirements and the aggregate of such orders make a generally satisfactory total.

Buffalo, March 26.—Good demand for all wire products, particularly wire lath and welded mesh, is reported. Plain wire shipments to Michigan automobile producers are heavy. Prices are firm.

Pittsburgh, March 26.—Demand for wire products is expanding, following a lull. This applies to requirements for the agricultural districts and to wire nails. The latter, however, reflect active specifications during fourth quarter in anticipation of the higher prices prevailing since the first of the year. Manufacturers' wire holds to its recent steady activity and is in good demand from a diversified list of consumers. Total business this month shows a substantial increase over February, although demand for some products still leaves considerable to be desired. Contracting for second quarter is practically completed, with first quarter prices of 2.50c to 2.60c for plain wire and $2.65 to $2.75 for wire nails well observed. Specifications still are being received against first quarter contracts which do not expire until March 30.

Cleveland, March 26.—Plain and bright wire specifications are fairly large from various lines of manufacture. Automotive demand continues heavy. Nut and bolt manufacturers specify freely. Nails are fair but barbed wire orders are few. Wire mill operations average 70 to 75 per cent. Prices are said to be firm on the new bases with small orders received daily with these levels applying.

Approved methods of protection against injurious light rays, fumes and gases produced by the action of the heat evolved during the welding process are discussed in a pamphlet entitled "Safety in Welding," recently issued by the Metropolitan Life Insurance Co., New York.

Cold Finished Steel

Second Quarter Specifications Coming in at New Price

COLD FINISHED PRICES, PAGE 869

Pittsburgh, March 26.—Specifications are being received against second quarter contracts for cold finished steel bars. The market is well established at 2.30c, Pittsburgh, with most customers under contract for second quarter. Mills have failed to build up backlogs substantially but have sufficient business to maintain good operations through April. Buying by the automotive industry maintains the recent active pace, and other consumers are good buyers. March shipments and specifications show an increase over February.

Strip

Capacity Production Unable to Keep Up With Demand—Some Shading Is Met

PRODUCERS of hot and cold strip are well supplied with tonnage and are operating at capacity in many cases. Consumers without regular sources find difficulty in obtaining place on mill books. At Chicago some attractive tonnages have obtained concessions from the ruling market. Prices generally are firm. New extras have gone into effect on current business.

STRIP PRICES, PAGE 870

Chicago, March 26.—Hot strip mills are operating virtually at capacity. Demand is coming from many sources but buyers serving the automotive trade are leading. Automobile frame makers have heavy order books. Some premiums have been paid for quick delivery on small lots. Despite the steady quotations to miscellaneous buyers some tonnage orders have brought out quotations as low as 2.10c, Chicago, for material 6 inches and under and as low as 2.00c for 6 1/16 to 24-inch material. This represents a reduction of nearly $1 a ton for desirable tonnage business. Cold rolled strip mills are getting some specifications on second quarter contracts. The range of 2.75c to 2.85c, Pittsburgh-Cleveland, is reported here but second quarter contracts have been written largely on the basis of 2.85c.

New York, March 26.—Second quarter contracts for strip steel are being placed. The market on hot strip appears firm at 1.90c, base, Pittsburgh, for 6 to 24 inches, and 2.00c on less than 6 inches. The usual contract price on cold rolled is 2.85c, base, Pittsburgh, with a differential of $2 allowed occasionally to some of the largest buyers. The new extras, which have the effect of increasing the net prices on narrow widths, now are in effect on cold strip.

Pittsburgh, March 26.—Strip steel producers will enter April in a comfortable position as regards backlogs. First quarter contracts were well specified and although operations have been maintained at capacity, deliveries on both hot and cold-rolled material continue deferred. Contracting for second quarter has been fairly active and most consumers have covered. New prices of 2.00c for hot strip to 6-inch, and 1.90c for 6 1/16 to 24-inch are well observed.

Cleveland, March 26.—Hot and cold strip buyers without regular connections find difficulty in placing their business. Practically all makers are well obligated to their regular trade and are unable to take on further accounts. Narrow hot strip deliveries are six to eight weeks deferred; wide from three to four. Cold strip deliveries are four to five weeks off.

Philadelphia, March 26.—Mills generally are booked up a month to six weeks on cold rolled strip and six to eight weeks on hot strip. Many users of hot strip are under contract for second quarter at 1.90c and 2.00c, base, Pittsburgh, depending on width; and of cold strip at 2.75c to 2.85c.

Nonferrous Metals

Producers in All Lines Experience Difficulty in Meeting Demand—Copper Prices Mount During Week—Zinc and Lead Up

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin—New York Spot	Straits Tin—New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Mar. 20	22.50	22.50	21.37½	49.00	49.05	7.85	7.65	6.47½	23.90	9.65	35.00
Mar. 21	23.00	23.10	22.75	49.37½	49.37½	7.85	7.70	6.60	23.90	9.75	35.00
Mar. 22	24.00	24.10	23.75	49.10	49.10	8.00	7.75	6.60	23.90	9.87½	35.00
Mar. 25	24.00	24.10	23.75	48.75	48.75	8.00	7.75	6.60	23.90	9.80	35.00
Mar. 26	24.00	24.10	23.75	48.75	48.75	8.00	6.75	6.75	23.90	9.75	35.00

NEW YORK, March 26.—Demand for all nonferrous metals is so great that producers find difficulty in meeting it. On top of the heaviest domestic demand the market has ever experienced has occurred a delay in shipment of certain supplies from Mexico.

Prices the past week increased two cents a pound on copper, ¼ to ½-cent on zinc, and about ¼-cent on lead. Tin declined and antimony fluctuated within a margin of ¼-cent.

Copper—Demand for copper has eased up a little in the past few days. Producers, however, are carrying several times more business on their books than at any time in the past few years. Most of the buying in the domestic market has been for July shipment, and for May and June in the export market. All indications are that producers will not be able to ship as much copper in March as consumers have specified. Producers are reluctant to book much more business immediately. Producers have practically been forced to allocate their business. Some custom smelter metal will become available through the spring.

Zinc—Prime western zinc jumped from 6.35c, East St. Louis, to 6.60c on March 20. A number of sales were made between these two figures on that day. Buying had increased materially a few days before that, and as it continued active smelters became more reluctant. At the higher price consumers continued as anxious as ever, and when the strength of the ore market was realized on March 25, an asking price of 6.85c appeared. Producers have sold well for April, May and June, and to a certain extent for later months. High grade zinc went to 8.00c, delivered, for spot several days ago.

Tin—Buying of tin has been moderate, and as a result the quick rise above 49.00c gave way to weakness. Consumers have bought prompt and several months ahead in a routine way. But some factors in the market think that other business may have been done quietly. If the latter is not true, then it appears that consumers are using up the metal more rapidly than they are replacing it.

Aluminum — Buying has become more active for future shipment as well as nearby. It is thought that some of the increase is an overflow from the copper market.—*Daily Metal Trade.*

Coke By-Products

First Quarter Has Been Good—Trend to Buy Farther Ahead

New York, March 26.—Excellent business has featured the light oil distillates market in the quarter now ending. Perhaps buying in any one of the three months was not as heavy as in December, when seasonal contracts were made, but specifications against these contracts have been heavy and substantial contracts in other quarters have been consummated.

One feature in recent months has been a greater disposition by consumers of industrial xylol and solvent naphtha to place long-time contracts. Future contracting is not as general as in the case of toluol, for instance, but is more in evidence. This development is attributed partly to increasing use of xylol by lacquer manufacturers, who not only are using greater quantities regularly for certain needs but also upon occasion are forced to buy xylol to round out toluol requirements.

The situation in toluol, however, is not as tight as around the close of 1928. Spot supplies then were virtually out of the question and, where available in the outside market, commanded heavy premiums. Spot supplies still are rather scarce, although most leading distributors are able to keep up with contract requirements and upon occasion are able to meet some unexpected need.

Solvent naphtha continues listless. The domestic market is unchanged at $2.30, delivered, and the export market at $2.20, port, for material in double bags. Naphthalene, on the other hand, is moving briskly, with balls strong at 6.50c to 7.50c, works, and flakes at 5.50c to 6.50c.

Mill Products

Base prices cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	27.12½
Copper, hot rolled	33.75
Lead, full sheets (cut ¼c more)	10.50
Zinc sheet (100-pound base)	$10.00
Zinc strip (100-pound base)	$9.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	32.00
Copper	35.12½
RODS	
Yellow brass (high, full turnings)	24.87½
Naval brass	27.50
WIRE	
Copper	25.87½
Yellow brass (high)	27.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	14.00 to 14.50
Chicago	15.00 to 16.00
Cleveland	16.75 to 17.00
HEAVY YELLOW BRASS	
Cleveland	11.75 to 12.00
ZINC	
New York	3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	17.00 to 17.50
Boston	19.50 to 20.50
Chicago	17.50 to 18.00
Cleveland	19.50 to 20.00
RED BRASS BORINGS	
New York	12.00 to 12.50
YELLOW BRASS TUBING	
Cleveland	11.75 to 12.00
LIGHT COPPER	
New York	15.00 to 15.50
Chicago	15.75 to 16.25
Cleveland	17.75 to 18.00
LIGHT BRASS	
Boston	10.50 to 11.00
Chicago	11.00 to 11.50
Cleveland	9.75 to 10.00
ALUMINUM	
Clippings, Cleveland	18.00 to 18.50
Borings, Cleveland	9.50 to 10.00
Cast, Cleveland	12.75 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	22.00 to 22.25

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.30

Quicksilver $124-125

New York, March 26.—Quicksilver is moderately strong at $124 to $125 a flask.

Warehouse

Sales Ahead of Last Year—Show Improvement over January and February—Movement Good for Outside Work

IN MOST cases, March sales by jobbers are ahead of March a year ago, and exceed the totals of either January or February of this year. Improved weather brings about better use of steel in outside work. Shipments are heavy. Cold strip has declined at Philadelphia. Cold strip, concrete bars, etc., are expected to advance at Pittsburgh.

New York—Trading among local warehouses is improving but volume of business is in no way comparable, even in a relative sense, to the amount of mill business indicated by the exceptionally high rate of producing operations. March business for some jobbers will probably exceed that of the corresponding period of 1928 by only a small margin. The month's total, however, will undoubtedly be higher than either of the preceding two months of this year. January and February for one or two leading jobbers actually showed a decline from the 1928 rate.

Philadelphia—Jobbers have reduced cold strip $2 per ton to 5.15c. Black and galvanized sheets are firm at the recent advance to 4.10c and 4.85c, respectively. Demand is heavy.

Buffalo—Iron and steel sales continue to expand as future shipment schedules of the mills become more congested. It is estimated that first quarter sales will exceed those of the corresponding period of 1928 by more than 5 per cent.

Pittsburgh—Sales show a fair increase compared with the rate a year ago, although little changed from the February volume. Price increases are in prospect on cold rolled products and concrete reinforcing bars, in line with recent mill advances of $2 and $1 a ton, respectively.

Cleveland—Buying from warehouses here is being done by a greater number of buyers, involves a greater number of products and a larger aggregate tonnage than in last month. The increase, on the basis of the same number of days, amounts to more than 5 per cent.

Cincinnati—Jobbers report that total business for March will exceed that of either January or February. Warm weather has brought an increase in outside business. Deferred mill deliveries has aided the market, although one mill is making promises at six or seven weeks. Prices remain firm.

St. Louis—Mild weather for two weeks has had a beneficial effect on business of iron and steel warehouses. Ordering of seasonal merchandise has picked up, and a perceptible improvement was noted in specifications on a number of commodities.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.90c to 3.30c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Phila., 3/16-in.*	2.90c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore	3.25c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.60c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.95c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.45c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York	4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.90c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit, ⅞-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.15c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.40c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.35c	3.85c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c to	4.00c
Pittsburgh	3.60c	4.10c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more. (c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid	
Hollow drill steel	13.00c
Iron bars, rounds	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **Less than 25 sheets. *†50 or more bundles.

Pacific Coast

Pending Tonnages Large and Prospective Needs Developing— Pipe Steady

BUSINESS continues good on the coast, with new projects developing sufficiently often to keep up activity. Two ships on which bids have been opened will take a comfortable tonnage. Cast pipe and oil country goods are in demand. General building operations are sufficient to call for steady tonnages of shapes and reinforcing bars. Prices are steady.

San Francisco, March 23.—(*By Air Mail*)—Considerable interest continues in the outcome of the bids opened last week by the Matson Navigation Co. for two boats requiring 13,000 tons of plates and 7000 tons of shapes. Demand, apparently, continues well sustained but actual bookings this week were not heavy. The cast iron pipe market was most active and several fair sized projects were placed. Bids were also opened on four projects calling for more than 3100 tons.

Pig Iron and Coke

In foundry pig iron and coke, sales and inquiries involved only small tonnages. Pig iron quotations continue unchanged.

Bars, Plates and Shapes

Awards of concrete bars this week were the second smallest weekly total of the year at 450 tons. Gunn, Carle & Co. booked the only business in excess of 100 tons. This called for 105 tons for a warehouse in San Francisco. Most pending business involves lots of 20 to 70 tons. Out-of-stock prices continue at 2.20c to 2.30c base on carload lots and up to 2.60c on less than carload lots.

Plate bookings this week were confined to small lots. The total tonnage booked so far this year amounts to 55,832 tons, compared with 9442 tons for the same period a year ago. Pending business includes 13,200 tons for two boats for the Matson Navigation Co., San Francisco, and 1700 tons for a siphon at Ellensburg, Wash. Demand for blue annealed sheets is being well maintained and prices appear firm at 2.725c c.o.f. on No. 10 gage. Plate prices continue at 2.35c c.i.f.

Awards of structural material this week were limited to one or two projects requiring more than 100 tons. The largest award was taken by the Judson-Pacific Co. and involved 250 tons for a plant in Emeryville, Calif., for the Western Electric Co. No action has yet been taken by the Matson Navigation Co. on 6800 tons for two ships, bids on which were opened last week. Bids will be opened April 10 for 135 tons for a grade separation on Railroad avenue, Los Angeles. Plain domestic shapes are firm at 2.35c c.i.f.

Other Finished Material

Included among the cast iron pipe lettings of the week were 596 tons for Anukini, T. H., 494 tons for South Gate, Calif., and 124 tons for Whittier, Calif., the former being placed with the American Cast Iron Pipe Co. and the latter with the United States Cast Iron Pipe & Foundry Co., Sacramento, Calif., opened bids this week on 404 tons and Los Angeles on 2217 tons.

Little of importance has taken place in the market for standard steel pipe and oil country goods. Movement of the latter product, especially in the southern part of California, is holding, with well casing in particular demand.

Bids will be opened March 27 for 415 tons of 90-pound tee rails and a quantity of rail joints and tie plates for the Los Angeles harbor commission.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Seattle Trade Growing

Seattle, March 20.—Increased interest in iron and steel products is noted in the Pacific Northwest as public works and private contracts are being awarded in greater volume. Prices are firm and the outlook is considered promising by all branches of industry.

Bids for one of the year's largest jobs will be opened April 12 for a five-story addition to the King county courthouse to cost $2,210,000. Both structurals and reinforcing materials in considerable tonnage will be required. A large amount of steel, possibly 2000 tons, will be required for the 16-story Merchants' Exchange building to be up for bids soon.

Awards for approximately 3750 tons of concrete bars, plates and shapes and more than 2000 tons of cast iron water pipe in this district this week were the heaviest in several months.

Bridge work and public construction scheduled for attention in Tacoma within the next 90 days is estimated to cost $5,000,000. Several large watermain projects are to be undertaken this summer.

Bars, Plates and Shapes

There is no change in the mill price of merchant bars at 2.35c and reinforcing material at 2.20c. Both local mills report steady operations. While lettings of the week were in small lots several larger projects are to be up for figures soon. The Bellingham hotel job, 350 tons, is expected to be awarded within a week. Pacific Coast Steel Co. this week booked 150 tons for a hotel at Wenatchee, about 100 tons for the Tacoma city hall and less than 100 tons for the Spokane street bridge superstructure, Seattle.

Plates are reported holding their own at the revised mill price of 2.35c, although no large tonnages are pending to test this level. Jobbing houses report a fair demand of light gages for routine repair and construction, tank and boiler work.

Wallace Bridge & Structural Steel Co. this week was awarded the contract for furnishing and fabricating the steel involved in the superstructure of the Spokane street bridge, Seattle, about 1505 tons. Two bridge jobs in Tacoma are of interest. The Pupallup river project, involving about 400 tons, bids April 1. A second structure will require about 2000 tons, but specifications are not yet completed. Structurals are firm at 2.35c.

Pipe Inquiries Are Heavy

American Cast Iron Pipe Co. this week contracted to furnish 700 tons of cast iron pipe for an improvement at Sanich, B. C. Local representatives of French pipe manufacturers have recently closed with Seattle and Tacoma contractors for about 1400 tons of cast iron pipe for various improvement jobs. Tacoma city officials are planning construction of a water system in Northeast Tacoma which will include a standpipe and a considerable tonnage of 12-inch cast iron main. Several other districts in Tacoma are to have water mains installed this season. Bids are pending at Astoria, Oreg., for 7512 feet of 6-inch cast iron pipe.

Old Materials

There is no change in the price of steel scrap, local mills paying $10 and $11, gross, with receipts increasing with the spring clean up. Exporting houses are still interested in select grades of steel scrap for shipment to Japan and with ocean freights weaker, they are in better position to compete. Cast iron scrap continues scarce and prices are firm at $14.50 net ton average. At this level foundries are buying sparingly but stocks are low and sellers have been able to dominate.

Trade with Brazil Grows

Continued expansion of shipments of industrial machinery from the United States to Brazil, in evidence over a long period, resulted in the trade of 1928 reaching a total value of $5,764,000 or 50 per cent over 1927, according to F. R. March, of the industrial machinery division, department of commerce, Washington. The steady upward trend in trade with Brazil is in contrast to the decrease which other principal suppliers to this market, Germany and the United Kingdom, have been experiencing. Shipments of construction and conveying machinery made a sharp rise in 1928.

Cooper-Bessemer Corp. Is Financed

Pittsburgh, March 26.—Financing for the recently formed Cooper-Bessemer Corp. has been announced. This consists of 100,000 shares of 3-year cumulative preferred stock, series A, and 40,000 shares of common stock offered in units of 10 shares of preferred stock and four shares of common stock at $660 per unit.

Cooper-Bessemer Corp. represents a combination of the C. & G. Cooper Co., Mt. Vernon, O., and the Bessemer Gas Engine Co., Grove City, Pa. Both companies are manufacturers of gas engines and compressors, while the Bessemer company is a manufacturer of marine diesel engines ranging from 50 to 1500 horsepower, in addition to stationary diesel engines for industrial and utility use. Gas engines and compressors of the C. & G. Cooper Co. range from 50 to 1500 horsepower.

For the past four years, net earnings of the two companies have averaged $1,014,443 annually, equivalent to 3.38 times preferred dividends and to $3.57 a share on the common stock to be outstanding. Net current assets of the corporation were $4,399,868 as of Dec. 31, 1928.

To Discuss Price Topic

Washington, March 26.—Price discrimination which takes the form of violating section 2 of the Clayton act will be an important topic at the trade practice conference of steel furniture manufacturers, which the federal trade commission has called for April 13, at Washington. Edgar A. McCullough, chairman of the commission, will preside.

Other topics will be secret rebates, commercial bribery, interference with contracts, enticement of employes, misleading statements, guarantees against decline in price, postdating and predating of contracts, and uniform contracts.

Tutein Case Is Resumed

New York, March 26.—Hearings in the complaint of E. Arthur Tutein Inc. against the Hudson Valley Coke & Products Corp., alleging violation of pig iron and coke selling contracts, were resumed at 42 West Forty-fourth street, New York, yesterday after a recess of one week. The arbitrators who are taking the evidence in this case are Louis K. Comstock, New York; Judge Sherman L. Whipple, Boston; and Sen. Robert F. Wagner, New York. E. Arthur Tutein occupied the stand yesterday and today in cross examination. It is expected that the complainant's case will be concluded within a few days, after which the witnesses of the defendant company will be heard.

Canadian February Iron, Steel Rates a Record

Toronto, Ont., March 26.—Production of pig iron in Canada in February was 93,939 long tons, the highest ever reported for any February, exceeding by 7 per cent the 87,764 tons of January, and by 45 per cent the 64,691 tons of February, 1928.

The gain over January was due to the increased output in Nova Scotia, where production rose 20,000 tons to approximately 41,000 tons, more than enough to offset the drop in Ontario tonnage from 67,000 tons to 53,000 tons. February production included 82,835 tons of basic, 5157 tons of malleable, and 5947 tons of foundry.

Production of ferroalloys in February was 5790 tons, a decline of 11 per cent from the January output of 6475 tons.

Production of steel ingots and castings in February amounted to 117,449 tons, 1 per cent over the 116,260 tons made in January and establishing a new record for the month. It was 19 per cent over the 98,820 tons produced in February, 1928.

Malleable Castings Near High Mark

Washington, March 26.—Preliminary figures for production of malleable castings in February total 74,683 tons, the highest figure since February, 1924, when the total was 77,203 tons. February operation was at 77.7 per cent of capacity, according to department of commerce statistics. Monthly comparisons follow:

	Total tons produced	Per cent of capacity	Bookings	†Monthly capacity
1928				
January	61,072	62.7	62,328	97,424
February	65,359	66.8	64,419	97,797
March	70,070	73.0	70,288	96,040
April	63,380	66.0	62,056	96,004
May	67,903	70.7	63,847	95,981
June	67,090	69.9	61,071	95,944
July	60,290	63.1	60,964	95,544
August	68,606	72.1	66,128	95,101
September	62,665	66.3	61,163	94,481
October	70,054	73.4	65,780	95,504
November	63,560	66.8	59,664	95,080
December	59,432	63.4	61,319	93,773
Total	779,481	67.9	759,027	1,148,673
1929				
January	73,169	77.5	77,091	94,420
*February	74,683	77.7	79,104	96,116

*Preliminary.

†Capacity during 1927 has been based on following formula: "Total number of units of molding floor space times average production per molder per day per unit of floor space, times number of actual working days per month." Beginning January, 1928: "Average monthly production for the best six consecutive months since Jan. 1, 1919, is to be taken as a practical monthly capacity."

Survey Shows Scope of Cleveland Markets

Manufacturers of metals and metal products, other than iron and steel, operating establishments in Cleveland and environs doing an annual volume of business aggregating $100,000 or more, purchased semifinished products valued at $18,677,544 during 1927 and distributed finished products valued at $32,795,487, according to a preliminary report on a census of industrial purchases and distribution conducted by the department of commerce with the assistance of the Cleveland chamber of commerce.

Purchases of metals during the year amounted to $17,135,954, or 91.75 per cent of the total purchases in the semifinished group, with aluminum contributing $10,121,044 to the total. Purchases of castings amounted to $441,249; chemicals $211,698; glass and glass products $96,565; enamels, lacquers, pigments, etc., $61,205; bolts, nuts, screws, etc., $29,302; miscellaneous semifinished products, $701,571.

Expenditures for equipment, maintenance and the like during the year amounted to $705,737. In this group purchases of equipment other than machinery totaled $309,187; new machinery $165,037; repairs and additions to buildings and repairs to equipment $116,045; office stationery, supplies, furniture and equipment $91,054; automobiles, trucks, repairs and maintenance $24,414.

The census of industrial purchases and distribution, of which this report is a part, was to ascertain the practicability and scope of questions concerning the purchases of manufacturers that would provide data on the interchange of commodities between manufacturers and the channels through which the finished products of manufacturers flow that could be included in a census of distribution now pending.

Opens Detroit Warehouse

J. M. & L. A. Osborn Co., Cleveland, jobber of iron, steel and other sheet metal, etc., will establish a warehouse in Detroit at the corner of Gratiot and Bellevue avenues, April 1. Operations will be directed from Cleveland by A. W. Howe, secretary of the company, 1541 East Thirty-eighth street.

A report on iron ore deposits in Carbon county, Wyoming, has been issued by the geological survey of the department of the interior, Washington.

Davison Coke & Iron Co. Being Financed

Pittsburgh, March 26.—Financing for the Davison Coke & Iron Co., which shortly will operate a blast furnace, by-product coke ovens and a cement plant on Neville Island, has been announced. The latter two units now are being constructed and the project will represent an expenditure of $12,000,000. The Sharpsville Furnace Co., a subsidiary, operates a blast furnace at Sharpsville, Pa.

Financing consists of an issue of $6,500,000 of 6 per cent participating preference stock, cumulative non-callable and voting, and is being offered at $102 per share and accrued dividend.

Capitalization will consist of $4,000,000 first mortgage 6 per cent 20-year sinking fund gold bonds, the preference stock and 100,000 shares of common stock of no par value. The common stock is not offered for sale. A substantial amount of the preference stock has been bought by business connections, which consist of W. J. Rainey Co., Dravo Contracting Co., L. R. Davidson, president, Union Drawn Steel Co.; William Penn Snyder, president, Shenango Furnace Co.; the Koppers Co., M. A. Hanna Co., and Allen S. Davison Co. The Neville Island project is expected to be completed with all plants in operation on or before June 1, 1929.

Net profits are estimated at $3,000,000 per year before interest, depreciation and taxes, leaving $693,237 applicable for participation after dividends. It is believed that about $1,500,000 of the preference stock will be available for public participation. A contract to supply gas has been made with a subsidiary of the Columbia Gas & Electric Corp. and excess power will be sold to the Duquesne Light Co., Pittsburgh. Coal will be brought to the plant by water and pig iron and cement will be shipped in the same manner.

Directors include George S. Davison, president, Gulf Refining Co., and Davison Coke & Iron Co.; Allen S. Davison, vice president, Allen S. Davison Co.; L. R. Davidson, president, Union Drawn Steel Co.; R. M. Dravo, vice president, Dravo Contracting Co.; A. P. Meyer, vice president, Basic Products Co.; J. F. Miller, chairman, Westinghouse Air Brake Co.; H. B. Rust, president, Koppers Co.; W. P. Snyder Jr., president, Shenango Furnace Co.; and Scott Stuart, president, W. J. Rainey, Inc.

Nearly all vanadium used in making high-speed and automotive steels comes from a deposit in the Peruvian Andes, at an altitude of more than 16,000 feet above sea level. Before this deposit was discovered early in the present century, vanadium was worth more than gold.

A.W.S. Annual Program Is Announced

Important technical papers listed on the tentative program for the annual meeting of the American Welding society which is to be held April 24, 25 and 26 at the Engineering Society's building, New York, are as follows:

Wednesday, April 24

MORNING

Business meeting.
Report of president, report of tellers' committee, election of officers, presentation of Miller medal.
Symposium on "How to Organize and Operate an Industrial Welding School."

AFTERNOON

"Physical Properties of Butt Welds," by G. Lobo, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
"Welded Pipe Joints."

EVENING

Meeting of board of directors.

Thursday, April 25

MORNING

"Design of Joints for Welded Steel Structures," by A. Vogel, General Electric Co., Schenectady, N. Y.
"Welding in the Heating and Ventilating Industries," by Prof. S. E. Dibble, Carnegie Institute of Technology, Pittsburgh.

AFTERNOON

"Welding in the Aircraft Industry," by R. M. Mock, Bellanca Aircraft Corp.
"Thermit Welding of Rail Joints for Main Line Track of Steam Railroads," by J. H. Deppeler, Metal & Thermit Corp., New York.

EVENING

Annual Dinner.

Friday, April 26

MORNING

Symposium on welding in the chemical and process industries.
"Welding Aluminum in the Chemical Industry," by W. M. Dunlap, Aluminum Co. of America, Pittsburgh.
"The Production of Ductile Welds in Nickel and Monel Metal," by N. B. Pilling, International Nickel Co., New York.
"Welding in the Gas-Handling Industry and Requirements of Welding in the Chemical Field," by R. S. McBride, assistant editor, *Chemical & Metallurgical Engineering*.
"Welding Pressure Vessels for High Temperature and Pressures," by T. McLean Jasper, A. O. Smith Corp., Milwaukee.

AFTERNOON

Annual meeting, American Bureau of Welding.
Review of progress made by various research committees of the bureau.
Plans for future investigational activities.
Election of officers.
Appointment of executive committee.
Meeting of structural steel welding committee.
Review of progress made to date and discussion of future activities.

To Meet in Philadelphia

Philadelphia has been chosen by the fuels division of the American Society of Mechanical Engineers for its third national meeting in the East, October 7 to 10. The program is being arranged by a committee under the chairmanship of F. M. Van Deventer.

The world's production of chromite finds its way into three channels, metallurgical, refractory and chemical.

New Company Has New Refractory Method

Covell Corp. has been organized with headquarters at 1600 Walnut street, Philadelphia. It owns basic patents covering a new method of masonry and refractory construction, calling for the use of masonry units on refractory brick provided with lugs which hold the bricks apart and thus provide openings which are shot full of cement or refractory joint material by means of a cement gun. This method of laying refractory bricks is to be applied to cupolas, blast furnaces, open-hearth furnaces, coke ovens or other units in which refractory linings are used.

Charles E. Covell, formerly with the Austin Co., Cleveland, is president. Other officers are: Vice presidents, Earl D. Covell and Morris Kind; secretary and treasurer, Arthur B. Murphy. Mr. Kind is president of the Hercules Portland Cement Co. Directors include Harry L. Cox, Marion Steam Shovel Co.; William Fulton Kurtz, president Colonial Trust Co., Philadelphia, and Earl J. Van Sciver, treasurer the Van Sciver Corp., Philadelphia.

A. P. Lee has been appointed manager of the ceramic and refractory division. Mr. Lee for the past seven years has had charge of the foundry of William Sellers & Co. Inc., Philadelphia.

All forms of masonry construction under the Covell Corp. patents are to be known under the trade name of Weldcrete masonry, and refractory linings under these patents are to be known as Co-Weld-Cor construction.

Car Requirements Heavy

Pittsburgh, March 26.—Railroads in greater Pittsburgh district will be required to furnish 150,000 more freight cars during second quarter than in the corresponding period of 1928, according to estimates of shippers at the ninth regular meeting of the Allegheny regional advisory board at Washington, Pa., recently. The roads affected by the additional business serve western Pennsylvania, eastern Ohio, northern West Virginia and parts of Maryland.

Iron and steel producers estimate an increase of 7.4 per cent in freight car requirements. In coal and coke, the predicted increase in car loadings is 17.6 per cent. Agricultural implements and vehicles other than automobile will show a gain of 8.2 per cent, it is expected.

Questions Structural Mill Patents

Steel Corporation, Replying to Bethlehem Suit, Attacks Validity of Grey Mill Grants—Files Interrogatories to Clarify Issues

NEW YORK, March 26.—Structural mill patents on which the Bethlehem Steel Co. bases its suit for infringement against the United States Steel Corp. and its subsidiaries, the Carnegie Steel Co. and the American Bridge Co., are invalid both as to their original granting and their reissue.

This claim is made by counsel for the Steel corporation in the answer filed in federal court at Newark, N. J., to the original suit brought by the Bethlehem company, Dec. 6, 1928. The Steel corporation has also filed interrogatories designed to clarify the issues and to make public various agreements by the American Universal Mill Co. and the Bethlehem company.

Patents Basis of Action

Five patents issued to the late Henry Grey in 1903 and 1904, some of which were later reissued, covering a type of mill to roll wide flange structural sections, are the basis of the action. The Bethlehem company contends that the Steel corporation infringed these patents when it rebuilt the Homestead works structural mills of the Carnegie company in 1926 and the following year began rolling the so-called beam sections.

According to the reply of the Steel corporation, improvements on the Grey mill were known and in use prior to the issuance of patents to Mr. Grey. The claim that the Bethlehem company has ceased paying royalties for the rolling of its so-called Bethlehem sections is stressed.

The Steel corporation March 9 obtained from the federal court a 30-day extension in which to obtain depositions to be filed.

The reply of the Steel corporation and its subsidiaries, with strictly legal formalities eliminated, follows:

Defendants admit that Carnegie Steel Co. has constructed at Homestead, Pa., mills designed for making beams and has made and sold such beams, that American Bridge Co. has fabricated and sold the same beams, but deny that such mills or their operation or beams so made and sold have been in infringement of any patent rights of plaintiffs. Defendants admit that the aforesaid acts of Carnegie Steel Co. and American Bridge Co. have been taken pursuant to the control and direction of United States Steel Corp. and that United States Steel Corp. at the time of the building of said mills and the making and selling of said beams was controlling and is now controlling all of the rights and property of Carnegie Steel Co. and American Bridge Co. and the operation and conduct of said mills and businesses.

Defendants deny that United States Steel Corp., Carnegie Steel Co. and American Bridge Co. have conspired together or have acted in conjunction as alleged in the seventeenth paragraph of the complaint and deny they have infringed any of the letters patent referred to in said paragraph and deny that they threaten such infringement. Defendants deny that Carnegie Steel Co. has used the patented process or has produced and sold beams or bars embodying the patented inventions set forth in the aforesaid letters patent. Defendants deny that American Bridge Co. has sold beams or bars infringing any of the aforesaid letters patent. . . .

Defendants aver that plaintiffs, by their written agreement of April 26, 1921, and by their conduct since the execution of said agreement, have been engaged in a conspiracy to monopolize the production and sale of wide flange beams in this country, well knowing that after that date there were no valid patents covering such beams or their production. Defendants aver that plaintiff Bethlehem Steel Co. well knowing the insufficiency of the patents in question nevertheless gave its name as licensee to lend color of validity and sufficiency to such patents and to deter others from production and sale of such beams, at the same time providing that it should bear the burdens of a licensee only so long as there should be no competition.

Claim of Damage Denied

Defendants deny that the plaintiffs or either of them has been damaged by the production and sale of rolled wide flange beams by defendants because that plaintiffs have at all times recognized between themselves the invalidity of said reissue and its original and of said beam patents and plaintiff Bethlehem Steel Co. has long since ceased paying royalties to American Universal Mill Co. on many beams made by the process of said reissue and its original and answering to the terms of the claims of said beam patents and described in the agreement of April 26, 1921, between plaintiffs as (a) Bethlehem I-beams or "light sections"; (b) Bethlehem girder beams of substantially 8 inches in depth; and (c) Bethlehem columns known to the trade under the section number H8.

Defendants aver that plaintiffs by reason of their long delay in bringing this suit with full knowledge of the acts of defendants camplained of having been guilty of laches and have abandoned any right of action which they otherwise might have had for infringement of said letters patent.

Defendants aver that patentee Henry Grey is not the original first and sole inventor of any of the alleged improvements claimed in the said letters patent and that said letters patent and each of them are therefore void.

Defendants aver that in view of the state of the art existing at the date of the alleged invention of the several letters patent sued on, the alleged improvements did not constitute patentable inventions and that said letters patent and each of them are therefore void.

Invention Abandoned, Claimed

Defendants aver that each of said letters patent are void for the reason that the alleged improvements therein claimed were invented by and known to others and in public use and on sale prior to the alleged invention thereof by Grey and more than two years prior to the filing of applications for said letters patent, such invention, knowledge and prior use and sale being by the following named persons and concerns at the following named places, namely: Henry Grey, Levi D. York, James E. York and William A. Dunn, Duluth; S. T. Wellman and G. W. Burrell, Cleveland; United States Steel Corp., New York; W. E. Corey and Carnegie Steel Co., Pittsburgh; Camille Mercader and W. R. Walker, New York; C. L. Strobel, Chicago; J. M. Taggart, Philadelphia; Julian Kennedy, Pittsburgh; Peter Weber, Homestead, Pa., and Roff Mahon, Port Huron, Mich.

Defendants aver as to all said letters patent and each of them, that they are void because the alleged improvements therein claimed were, prior to the alleged invention thereof by Henry Grey or more than two years prior to the filing of the applications for said letters patent, patented and described in the following letters patent and printed publications . . .

Defendants aver as to all the patents in suit, that they are void for the reason that the inventions claimed therein were abandoned or dedicated to the public by failure to claim the same in prior and other patents of Henry Grey particularly patents Nos. 587.958 and 635,381 listed above; 758.529, April 26, 1904; 943,633, December 14, 1909, and 993,242, May 23, 1911; or that they are void as being double patents for the inventions patented by said patents Nos. 587,958; 635,381; 758,529; 943,633 and 993,242.

For further defenses to reissued letters patent 16,097 defendents say:

Said reissue is void because of failure of the exclusive licenses to join in the application therefor and in the surrender of the original patent, and because of the incompetence of the applicant for the reissue to make such application and particularly to make the oath required therein, and for fraud and deception, and particu-

larly in alleging that the defects in the original were inadvertent.

Said reissue is invalid because of fraud and deception in the securing of the original patent, and particularly in securing claims therein which the applicant knew to be invalid for lack of novelty and invention.

Said reissue is void for failure to make a timely application therefor after known long public use of the process claimed in such reissue and general public knowledge of such use and printed publications of such process. * * *

Said reissue is void as against these defendants because they commenced the designing and building of a mill to carry out the process complained of with the knowledge of these complainants before the surrender of the original patent and the application for the reissue and because the reissue was applied for only after plaintiffs had learned of the work of defendants in this respect and therefore either the reissue is invalid or the plaintiffs are estopped from bringing this action against defendants by reason of the intervening rights of defendants. * * *

Said reissue is void because the claims are for a process which differs substantially from that described and illustrated in the specification and drawings, and because they are not for the same invention as that covered by the original.

Said reissue is void for the reason that the process described therein is inoperative to produce the result claimed or to produce any useful result.

Said reissue is void because the process claimed therein was prior to the alleged invention thereof by Grey and more than two years prior to the filing of the original application, patented and described in the following letters patent and printed publications. * * *

Said reissue is void because Henry Grey was not the first inventor of the process claimed therein, said process having been previously invented by James E. York and described in his application for patent filed June 16, 1903, on which he was granted a patent No. 1,001,115, Aug. 22, 1911, and by Raymond D. York and described in his application for patent filed April 5, 1902, in which he was granted a patent No. 728,349, May 19, 1903.

Gray Iron Orders Drop

Cleveland, March 26.—New orders received by gray iron foundries in February were 118.3 per cent of normal, compared with 128.5 per cent in January, according to the Gray Iron institute report. Following are further statistics:

	No. of Foundries Reporting	Short tons	Per cent of Normal*
Normal production	84	19,550	100.0
Production, Feb., 1929	84	21,860	111.8
New orders rec'd., Feb.	45	11,893	118.3
Unfilled orders, Feb. 28	45	11,357	112.5
Materials rec'd., Feb.†	73	21,828	121.8
Mat'ls on hand, Feb. 28†	71	26,240	149.6

*Normal production is the average monthly production in 1926, 1927 and 1928. The percentages are in ratio to the total normal production for the number of foundries shown.

†All grades of pig iron and all grades of scrap.

In addition 77 foundries reported on the business outlook as follows: Good, 47; fair, 29; poor, 0, and bad, 1. The statistics will be continued and reported monthly.

New Auto Production Record Set

Washington, March 26.—Totaling 466,084 passenger cars and trucks, automobile production in the United States in February established a new record, exceeding the previous record of 461,298 cars and trucks, set in August, 1928. Canadian production was high but did not pass the Canadian high mark. Following are further comparisons by months:

	United States			†Canada
1928	Total	Passenger cars	Trucks	Total
Jan.	231,728	205,646	26,082	8,463
Feb.	323,796	291,151	32,645	12,504
March	413,314	371,821	41,493	17,469
April	410,104	364,877	45,227	24,211
May	425,783	375,863	49,920	33,942
June	396,796	356,622	40,174	28,399
July	392,086	338,792	53,294	25,226
Aug.	461,298	400,593	60,705	31,245
Sept.	*415,314	*358,891	*56,423	21,193
Oct.	*397,284	*340,146	*57,138	18,536
Nov.	*257,136	*217,454	*39,682	11,769
Dec.	*234,109	*205,993	*28,116	9,425
Year	*4,358,748	*3,827,849	*530,899	242,382
1929				
Jan.	*400,715	*349,111	*51,604	21,501
Feb.	466,084	407,589	58,495	31,287

†Reported by dominion bureau of statistics.
*Revised.

February Plates Higher

Washington, March 26.—February orders for fabricated steel plate totaled 61,025 tons, the highest since November, 1926, when orders were 63,119 tons, according to department of commerce statistics. Following are further monthly comparisons:

		Oil storage			Stacks and miscellaneous
1928	Total	tanks	Gas holders	Blast furnaces	
Jan.	35,787	8,758	2,062	1,225	16,412
Feb.	49,820	25,532	3,679	143	15,420
March	46,840	25,226	1,897	699	14,683
April	50,347	22,095	4,654	619	16,265
May	42,487	14,852	4,744	202	17,768
June	35,202	12,204	3,225	778	15,803
July	35,959	16,881	1,848	499	12,159
Aug.	47,245	24,807	1,814	429	17,579
Sept.	40,281	18,572	1,642	386	13,976
Oct.	53,983	23,960	1,861	2,435	17,480
Nov.	54,277	32,381	2,081	563	10,731
Dec.	36,254	14,217	2,216	655	12,060
(Year)	528,482	241,828	31,723	8,633	181,336
1929					
Jan.	*32,705	11,055	2,018	325	11,567
Feb.	61,025	16,093	6,356	95	20,809

'Talkies' Need Quiet Gears

Worcester, Mass., March 26.—Manufacturers of gears in New England are operating at close to capacity, reflecting not only the high rate of machine tool production in this district but also record automobile demand. A new outlet for precision gears, requiring silent drive, is the talking moving picture field. The paper industry is a good buyer of large gears.

Castings Bookings Off, Production Up

Washington, March 26.—February bookings of commercial steel castings declined from the unusually high January total, according to the department of commerce. Production increased, however, and was the highest since March, 1927. Following are comparisons:

	—Bookings—		—Production—	
1927	†Total net tons	Railway specialties	†Total net tons	Railway specialties
1928				
Jan.	91,448	41,276	74,454	28,714
Feb.	91,076	41,096	87,727	37,719
March	83,755	30,992	93,989	38,448
April	84,086	32,810	86,016	32,619
May	86,796	34,995	93,333	36,599
June	72,107	22,597	91,746	30,742
July	66,992	20,483	78,648	27,501
Aug.	81,286	25,171	87,742	27,157
Sept.	82,762	35,234	75,761	25,311
Oct.	78,860	26,736	87,952	29,471
Nov.	84,742	34,545	82,385	30,799
Dec.	96,373	43,928	82,203	26,484
Total	1,000,283	389,863	1,021,956	371,564
1929				
*Jan.	124,313	64,809	93,413	35,689
Feb.	115,539	58,903	97,468	40,282

†For tonnage of miscellaneous castings deduct Railway Specialties from the total.
*Revised.

Steel Co. of Canada Earns More in 1928

A substantial increase in profits is shown in the financial statement of the Steel Co. of Canada, Montreal, Que., for 1928. Manufacturing profits amounted to $4,051,705, compared with $3,166,280 for 1927, and net profits after deduction of all charges except dividends were $2,583,397. Income from investments amounted to $454,776. Profit and loss balance was $12,042,377. The balance sheet shows a net working capital of $14,204,748, compared with $13,047,100.

Furniture Orders Down

Washington, March 26.—Steel furniture orders in February declined from the record month of January according to the department of commerce report. Monthly comparisons follow:

	Business Group		Shelving	
	Orders received	Shipments	Orders received	Shipments
	(In Dollars)			
1927				
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999
March	3,283,329	3,169,351	841,098	813,607
April	2,915,344	3,065,637	740,658	716,104
May	3,085,638	3,213,291	732,921	768,988
June	2,764,085	3,009,229	727,060	720,253
July	2,594,216	2,515,482	713,330	722,516
Aug.	2,619,234	2,564,638	863,422	836,105
Sept.	2,689,009	2,754,135	799,850	678,422
Oct.	3,192,927	3,158,998	958,726	953,804
Nov.	2,675,664	2,854,312	875,354	915,640
Dec.	3,610,645	3,117,139	828,555	791,376
Total	35,974,117	35,043,412	9,601,082	9,297,078
1929				
Jan.	*3,903,591	*3,623,681	1,099,039	970,798
Feb.	3,060,290	3,143,081	919,557	974,305

Iron Ore Is Advanced 25 Cents

Lake Superior Producers Selling Large Tonnages, in Strong Market—First Change in Prices in Five Years Reflects Improved Conditions in Iron and Steel Market —Shipments This Year Expected To Exceed Those of 1928

PRICES of Lake Superior iron have been established for 1929 at an advance of 25 cents a ton. The new prices for the base grades, gross ton, delivered at lower lake ports are: Mesabi nonbessemer, $4.50; Mesabi bessemer, $4.65; old range nonbessemer, $4.65; old range bessemer, $4.80, and high phosphorus ore, $4.40.

These prices were established Friday, March 22, when one company announced it had sold on that day approximately 500,000 tons. Another company followed with an announcement on Saturday that it had sold 300,000 tons in several lots at the new prices. Other companies have adopted them, and they are the basis of prices applying on long-term contracts between the leading producers and their associated interests.

More than 1,000,000 tons of ore was covered at the new prices by Tuesday of this week, representing open market business. Demand is more active than it has been at this time in several years, as stocks on hand at lower lake ports and furnaces are 3,500,000 tons less than a year ago.

For several consecutive years the Ford Motor Co.'s inquiry for Lake Superior ore has led to the establishment of prices, but this year the company was not ready to take action on 354,000 tons, when other consumers were prepared to close and willing to pay higher prices. Consequently, the Ford inquiry did not figure this year in the preliminary negotiations. Some producers said on Tuesday they had not submitted prices to the Ford company, though intending to do so. They do not expect purchases will be made by that company until late this week.

The advance is the first change of any kind in the schedule since 1924, breaking the longest continuous period of stationary prices in the history of the industry. In the past four years when prices were maintained on a stable basis the ore producers really believed they were ntitld to more money. Taxes and other costs were advancing, but stocks and production capacity were so large they were unable to take the desired step.

The advance now reflects a strengthening of the ore producers' position as well as the general improvement in the iron and steel market. With iron and steel prices higher than a year ago and prospects for a continuation of favorable conditions the ore producers felt they were entitled to some increase.

As stated in last week's issue of IRON TRADE REVIEW, negotiations were begun on a basis of an increase of 25 cents. Some observers believed that with such a moderate demand the sellers had slight prospect of obtaining any increase, but the fact is that little resistance was encountered from the iron and steel companies.

Pig iron prices today are 75 cents to $1 higher at the opening of ore buying movement than they were at the similar period last year. But they are lower today than they were at the opening dates in the three years preceding. Pig iron prices, however, were drifting downward. Beginning with 1923, for six consecutive years they showed a reduction, at the ore buying period, in the face of which ore producers could not hope to advance their commodity. Despite the increase in ore prices they still are lower than at any time since 1915, and 11 per cent below that year.

In contrast with this the rail freight on ore from mines to upper lake ports is approximately 60 per cent higher than in 1915; a similar increase is noted in vessel transportation down the lakes, while rail rates from lower lake ports to the Pittsburgh and Wheeling districts today are 40 per cent above 1915.

Lake carrying rates have not been determined for 1929. The present rates have been in effect for five

(*Concluded on Page* 897)

Iron Ore Unit Values

	OLD RANGE		MESABI	
	Bessemer Cents	Non-Bessemer Cents	Bessemer Cents	Non-Bessemer Cents
1929	9.320	9.029	09.29	08.738
1928	8.835	8.544	8.544	8.252
1927	8.835	8.544	8.544	8.252
1926	8.835	8.544	8.544	8.252
1925	8.835	8.544	8.544	8.252
1924	11.364	10.680	10.909	10.388
1923	12.818	12.233	12.364	11.942
1922	11.909	11.262	11.454	10.971
1921	12,818	12.233	12.364	11.942
1920	14.636	14.175	14.182	13.883
1919	12.818	12.233	12.364	11.942
1918*				
Oct. 1	13.182	12.621	12.727	12.330
July 1	12.727	12.136	12.273	11.845
Apr. 1	11.909	11.262	11.454	10.971
1917	11.909	11.262	11.454	10.971
1916	9.181	8.349	8.727	8.058
1915	7.909	6.990	7.455	6.699
1914	7.909	6.990	7.445	6.699

*Figures for 1918 established by government.

Prices of Iron Ore and Pig Iron at Date of Ore Buying Movement, 1901 to 1929

Season	Date buying movement	Old range Bessemer	Mesabi Bessemer	Old range non-Bessemer	Mesabi non-Bessemer	Iron prices, Valley Bessemer	Iron prices, No. 2 Foundry
1929	March 22, 1929	$4.80	$4.65	$4.65	$4.50	$18.50	$18.00
1928	April 16, 1928	4.55	4.40	4.40	4.25	17.50	17.25
1927	April 8, 1927	4.55	4.40	4.40	4.25	19.50	18.50
1926	March 17, 1926	4.55	4.40	4.40	4.25	21.00	20.50
1925	April 4, 1925	4.55	4.40	4.40	4.25	22.00	21.00
1924	March 24, 1924	5.65	5.40	4.90	4.75	23.00	22.00
1923	March 24, 1923	6.45	6.20	5.70	5.55	31.00	31.00
1922	June 9, 1922	5.95	5.70	5.20	5.05	25.00	24.00
1921	June 16, 1921	6.45	6.20	5.70	5.55	23.00	22.50
1920	Feb. 2, 1920	7.45	7.20	6.70	6.55	41.00	40.00
1919	April 28, 1919	6.45	6.20	5.70	5.55	27.95	26.75
*1918	Oct. 1, 1918	6.65	6.40	5.90	5.75	35.20	34.00
	July 1, 1918	6.40	6.15	5.65	5.50	35.20	33.00
	April 1, 1918	5.95	5.70	5.20	5.05	35.20	33.00
1917	Nov. 22, 1916	5.95	5.70	5.20	5.05	30.00	26.00
1916	Dec. 7, 1915	4.45	4.20	3.70	3.55	18.50	18.00
1915	April 19, 1915	3.75	3.45	3.00	2.80	13.60	12.75
1914	May 1, 1914	3.75	3.50	3.00	2.85	14.00	13.25
1913	Nov. 19, 1912	4.40	4.15	3.60	3.40	17.25	17.50
1912	March 20, 1912	3.75	3.50	3.00	2.85	14.25	13.25
1911	April 21, 1911	4.50	4.25	3.70	3.50	15.00	13.75
1910	Dec. 24, 1909	5.00	4.75	4.20	4.00	19.00	17.25
1909	May 10, 1909	4.50	4.25	3.70	3.50	14.75	14.25
1908	June 15, 1908	4.50	4.25	3.70	3.50	16.00	15.00
1907	Nov. 5, 1906	5.00	4.75	4.20	4.00	21.50	21.50
1906	Dec. 5, 1905	4.25	4.00	3.70	3.50	17.25	17.25
1905	Feb. 1, 1905	3.75	3.50	3.20	3.00	15.50	16.00
1904	April 15, 1904	3.25	3.00	2.75	2.50	13.35	13.15
1903	March 20, 1903	4.50	4.00	3.60	3.20	21.50	21.65
1902	Feb. 1, 1902	4.25	3.25	3.25	2.75	15.90	15.90
1901	April 15, 1901	4.25	3.25	3.00	2.75	16.15	14.40

*Figures for 1918 established by the government.

Industrial Men in the Day's News

Arthur Roeder, President, Colorado Fuel & Iron Co., Denver

THE sales department of a dollar watch manufacturer and the directorate of a steel pen manufacturer were as near as he previously came to the iron and steel industry.

EXECUTIVE training along legal and taxation lines, together with sales promotion success in the East, make him a desirable acquisition for the Colorado company.

ONLY 45 years of age, the new president joins the ranks of youthful steel company executives so prevalent in the eastern branch of the industry.

IN ASSUMING the presidency of the Colorado Fuel & Iron Co., Denver, as noted in IRON TRADE REVIEW of Jan. 31, 1929, Arthur Roeder joins the limited ranks of major executives in the iron and steel industry who prior to their incumbency had never in any way been affiliated with it. Yet he brings to his new position such important attributes as years of executive training, experience along lines of legal and taxation matters and, perhaps important above all else, an impressive record in sales promotion. In fact, in Mr. Roeder's appointment many see an effort so marked throughout the industry to develop merchandising to the general high plane of production and metallurgical practices.

Born in Pleasantville, N. J., June 6, 1884, Mr. Roeder ranks among the industry's youngest executives. He received his preliminary education at Cartaret academy, Orange, N. J., and in 1907 was graduated in civil engineering from Cornell university. For three years he served as junior engineer in the municipal sewer department, Newark, N. J., and then joined the sales forces of Charles H. Ingersoll, of dollar watch fame.

Eventually he became manager of sales, and while in this capacity spent a year abroad, principally in Great Britain, Germany and Holland, meeting with considerable success in the expansion of his company's export business. In this achievement, efforts to familiarize foreign dealers with the American product were subordinated to those of analyzing and developing potential markets.

While affiliated with the Ingersoll Watch Co. he was largely instrumental in the development of the luminous watch. The dark colored dial is attributed directly to his ingenuity; and his interest in this particular work undoubtedly found reflection later when in 1918 he resigned from the Ingersoll Watch Co. to become treasurer of the United States Radium Corp. In 1926 he became executive vice president of the American Linseed Co., a position he occupied until the close of 1928, when the company was absorbed by the Gold Dust Corp. He formerly was a director of the Spencerian Pen Co.

As may be expected of a man of his training and relative youth, Mr. Roeder is of the alert, vigorous type. In his days at Cornell, despite the rigorous demands of an engineering course, he was active in baseball and track and his interest in sports is maintained to this day. He is active in the gymnasium and handball court.

In his new position Mr. Roeder heads an organization of 11,000 to 12,000 men. He heads a company with a finished steel capacity in excess of 1,200,000 tons. Its operations begin with the mining of the ore, and its properties extend from southern Wyoming to the lower reaches of Colorado.

His initiation into the steel industry is severe in a sense, yet not so severe for one already accustomed to heavy responsibility. In fact, Mr. Roeder has attacked his new duties with enthusiasm. Located in the heart of the fast growing western country, with the appeal that this alone has for the average westerner, with modern equipment and virtually a self-contained unit, the Colorado Fuel & Iron Co. presents possibilities that should rightfully inspire the leader chosen to succeed Jesse F. Welborn, now chairman of the board.

Men of the Industry

J M. SIELAFF, for many years superintendent of the Johnston & Jennings Co., Cleveland, and who later conducted his own business as the Loomis-Sielaff Co., Cleveland, designer and builder of special equipment and machinery, has become affiliated with the Strong, Carlisle & Hammond Co., Cleveland. He succeeds Fred D. Baker, who as noted in IRON TRADE REVIEW, of March 14, resigned to become affiliated with Charles H. Besley & Co., Chicago.

* * *

E. E. Swartswelter, Youngstown, O., was elected a director of the Eaton Axle & Spring Co., Cleveland, to succeed N. B. Whitcomb. Other directors were re-elected.

* * *

William P. Witherow, president, Witherow Steel Corp., Pittsburgh, has been elected a director of the Peoples Savings & Trust Co. and the First National bank, Pittsburgh.

* * *

A. P. Fox, formerly associated with L. E. Ritter, Chicago, engineer, has become identified with the sales engineering force of the Bethlehem Steel Co.'s office at Chicago.

* * *

John H. Schwab has been made superintendent of the Plano Foundry Co., Plano, Ill., to succeed J. Haines. He was formerly with the Northwestern Foundry Co., Chicago.

* * *

Herman Hachmeister, vice president, George M. Forman & Co. has been elected a director of the North American Car Co., Chicago, to succeed G. M. Brigham.

* * *

J. Lloyd Uhler, for many years metallurgical engineer for the Union Steel Casting Co., Pittsburgh, has been appointed consulting metallurgical engineer for the Pittsburgh Rolls Corp., Pittsburgh.

* * *

Arthur Roeder, president, and W. A. Maxwell Jr., vice president, have been elected directors of the Colorado Fuel & Iron Co., Pueblo, Colo., succeeding J. B. Marks and E. H. Weitzel, resigned.

* * *

Fred Glover and D. S. Devor of Detroit, and Walter F. Rockwell, George T. Moore and A. H. Chatley, of Oshkosh, Wis., have been elected directors of the Wisconsin Axle Co., formed by the Timken-Detroit Axle Co. to take over the assets of the Wisconsin Parts Co. Mr. Rockwell is vice president and general manager. Mr. Moore has been elected vice president and sales manager, Mr. Chatley secretary and treasurer, and B. W. Keese, chief engineer.

* * *

E. R. Bishop, general manager of the Globe Forge & Foundries Inc., Syracuse, N. Y., was elected vice president and treasurer at the recent annual meeting of stockholders. He also was made a director.

* * *

W. H. Milliken has been elected president of the Charleroi Iron Works,

WILLARD S. HARING

General manager of sales, Alan Wood Steel Co., Philadelphia, as noted in IRON TRADE REVIEW of March 14

Charleroi, Pa. Other officers are: Vice president and general manager, C. B. Anfindsen; vice president, J. M. Hennegan; and secretary-treasurer, John D. Berryman.

* * *

Herbert L. Cummings, Windsor, Vt., for 14 years associated with the machinery sales department of the National Acme Co., Cleveland, has been appointed New England representative for the company. He will operate out of its New York office, 117 Liberty street.

* * *

Maurice E. Hensler, formerly employed by the Ross Gear & Tool Co., Lafayette, Ind., on plant maintenance work, has been appointed to succeed L. Dale Hagenbook, as plant engineer. Mr. Hagenbook, as noted recently, has been made designing engineer for the Northwest Engineering Co., Green Bay, Wis.

* * *

C. H. Bradley has been appointed head of the newly established industrial division of the American Ship Building Co., Cleveland. Mr. Bradley was chief engineer of the Variety Iron Works, formerly in Cleveland.

* * *

George A. Terhune, who has been affiliated with the Chicago Pneumatic Tool Co., Chicago for seven years, has been appointed advertising manager of the C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., manufacturing indicating, recording and controlling instruments. He succeeds Capt. M. F. Behar, who left the Tagliabue company to become advertising manager of the Quigley Furnace Specialties Co. Inc., New York, as noted in IRON TRADE REVIEW of March 14.

* * *

W. A. Rowe was recently elected a director, vice president and treasurer of the Osborn Mfg. Co., Cleveland. Philip F. Smith was made a director, assistant secretary of the company and factory manager of the brush division. C. W. Titgemeyer was elected vice president in charge of the brush sales division. Ralph B. Jones was appointed assistant sales manager of the brush division and L. H. Weber was made assistant advertising manager.

R. W. Hisey, who has been made secretary and factory manager of the machine division, was born at Milford, Ind., in 1890, and attended public school at Canton, O. After working for the Russell Engine Co., Massillon, O., for 5 years as secretary to the secretary of the company, he became connected with the Osborn company as secretary to the chief engineer. Later he was made assistant works manager.

John D. Wise, new assistant sales manager of the machine division, was born at West Point, Miss., in 1895, and was graduated from Mississippi Agricultural and Mechanical college, Starkville, Miss., in 1915. He worked several years for Robbins & Myers Co. at Springfield, O., and St. Louis, and then became connected with the Osborn company in 1919 as assistant to M. W. Zeman, sales manager. In 1921-22 he was superintendent of the foundry laboratory, Univeristy of Illi-

nois, Urbana, Ill., but returned to the Osborn company in 1922.

E. F. Oyster, who was made chief engineer, was born in Alliance, O., in 1883. He was connected with the Alliance Machine Co., Alliance, O., for 12 years and then became connected with the Osborn Mfg. Co. as chief draftsman. Later he was made mechanical engineer.

* * *

Harrison Souder has established consulting engineer headquarters at 40 Wall street, New York.

* * *

R. K. Blanchard was elected a director of the Neptune Meter Co., New York, to succeed the late J. B. Kirkpatrick.

* * *

J. W. Haynes, formerly with the Plano Foundry Co., Plano, Ill., was made superintendent of the France Foundry & Machine Co., Toledo, O.

* * *

R. A. Mitchell, vice president of the Alabama Power Co., Birmingham, Ala., was recently elected a director of the Gulf States Steel Co., Birmingham.

* * *

G. C. Cole, formerly general foundry foreman of the Danville Iron Co., Danville, Ill., was appointed foundry superintendent of the Herschel Mfg. Co., Peoria, Ill.

* * *

Charles F. Treadway, treasurer of the Peck, Stow & Wilcox Co., Southington, Conn., was recently elected secretary also. He succeeds F. D. Taylor, who resigned, as noted in IRON TRADE REVIEW of March 14.

* * *

O. B. Stauffer, formerly sales manager of the Forest City Structural Steel Co., Cleveland, has been appointed manager of the architectural department of the John Harsch Bronze & Foundry Co., Cleveland.

* * *

A. Fries, plant manager of the Peru Foundry Co., Peru, Ind., for several years, was made vice president and general manager at a recent meeting of the stockholders and directorate at Dayton, O. He succeeds P. V. Gartland, of Indianapolis.

* * *

W. L. Macrae has resigned as Syracuse, N. Y., representative of Henry Prentiss & Co., 149 Broadway, New York, machinery dealers, and will represent the Oilgear Co., Milwaukee, and the Keller Mechanical Engineering Corp., Brooklyn, N. Y., in the Syracuse-New York territory.

* * *

R. L. Sittinger, 303 Chamber of Commerce building, Boston, was recently appointed New England representative for the Northern Equipment Co., Erie, Pa., in connection with the sale of its boiler feed control system. He succeeds Harry H. Leathers, retired.

* * *

Stuart Naramore resigned as sales manager of Andrew C. Campbell Inc., Bridgeport, Conn., manufacturer of nibbling machines, after six years. On April 1 he becomes connected with the Triplex Machine Tool Co., Waltham, Mass., and will represent it in machine tool selling in the Connecticut territory.

* * *

H. G. Smith, of the Bethlehem Shipbuilding Corp. Inc., was elected

JAMES S. WATSON,

Vice president, Link-Belt Co., Chicago, as noted in IRON TRADE REVIEW of March 14

president of the National Council of American Shipbuilders. The headquarters of the council have been moved from 50 Broadway, to 11 Broadway, New York.

F. P. Palen, of the Newport News Shipbuilding & Dry Dock Co., has been elected vice president.

* * *

R. J. S. Pigott, at one time mechanical engineer with Stevens & Wood Inc., 20 Pine street, New York, engineer and constructor, has returned to that organization as consulting mechanical engineer. He has been consulting engineer with the following organizations: Public Service Corp. of New Jersey, the Production Co., and the Smooth Engineering Corp.

* * *

George Sengstacken, assistant superintendent of the Chase Brass & Copper Co., Waterbury, Conn., is to be superintendent of the Cleveland plant, now being built in Euclid Village, O. Partial production is to begin in July, according to District Manager C. K. Lenz. Harry P. Croft, assistant metallurgist at Waterbury, is being transferred to Cleveland to be chief metallurgist in charge of all laboratory work. F. A. Jackle is works manager at Waterbury and F. S. Chase is president.

* * *

Arthur Brandt, formerly of Norwalk, O., and graduate of Norwalk high school and the Case School of Applied Science, and Western Reserve university, Cleveland, sails from New York March 29 to superintend construction of a $30,000,000 tractor plant for the Russian government at Moscow. Mr. Brandt was chief engineer in charge of the Nashville, Tenn., plant of the Du Pont interests during the war and also had charge of the erection of the new Pontiac, Mich., plant of the General Motors Corp.

* * *

J. A. Clauss, chief engineer of the Republic Iron & Steel Co. at Warren, O., has resigned to become affiliated in the same capacity with the Great Lakes Steel Corp., Ecorse, Mich., near Detroit. He has been with the Warren plant for three years and has been identified with leading steel companies in the Youngstown district.

S. C. Cozad, field engineer; W. M. Rees, chief electrical engineer; and R. M. Hughes, chief draftsman for the Republic company at Warren, resigned at the same time and will take up similar duties with the Great Lakes Steel Corp., effective April 1.

It is understood David Thompson, formerly works superintendent at Butler, Pa., for the American Rolling Mill Co., will be assistant chief engineer of the Great Lakes plant.

February Babbitt Down

Washington, March 26.—Total apparent consumption of babbitt metal in February was 5,720,243 pounds, compared with 6,093,267 pounds in January and 4,470,368 pounds in February, 1928, according to statistics of the department of commerce. Monthly comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1928			
January	4,928,517	4,034,352	894,165
February	4,470,368	3,443,694	1,026,674
March	4,927,634	3,903,071	1,024,563
April	4,842,656	3,724,691	1,117,965
May	4,606,899	3,578,422	1,028,477
June	4,731,023	3,625,347	1,105,676
July	4,692,825	3,816,707	938,955
August	4,755,662	3,843,680	911,982
September	5,308,403	4,309,004	999,399
October	5,796,419	4,605,179	1,191,240
November	5,630,417	4,356,670	1,273,747
December	4,985,942	4,148,601	837,341
Tot. (1928)	59,676,765	47,338,625	12,338,140
1929			
January	6,093,267	4,876,506	1,216,761
February	5,720,243	4,695,669	1,024,574

British Pig Iron Prices Stronger

Midland Producers Working Out Stabilization Plan, While Cleveland Makers Give Notice of Advance—Heavy Hematite Shipments Made to Italy—South American Countries Placing Good Steel Orders with Continental Mills

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, March 26.—(*By Cable*)—Little change is noted in the European iron and steel situation this week. Pig iron producers in the Midland district of England are fixing prices for delivery within a limited area, as a further step toward stabilization. Pig iron prices generally are firm, but buying is negligible. Cleveland producers have given notice of an advance in pig iron prices for second half, due to increasing costs. Heavy shipments of hematite are being made to Italy.

The outlook for the British shipbuilding industry is improving. The Workington Steelworks will run at full capacity for the remainder of the first half. During this time it will roll rails for shipment to Argentina, India and to British railroads.

A report from Paris states French iron and steel markets are active. Semifinished steel prices are firm. Belgian steelworks report a revival in domestic demand. Good orders for steel are being received from South America. Berlin reports exports improving slowly, and a better domestic situation. Heavy orders are pending for cars and locomotives. More interest is noted in plates, due to the termination of the shipyards strike.

British Steel Market Gaining in Strength

BIRMINGHAM, Eng., March 15.—Ground is being gained slowly but surely in the British iron and steel trade, and the buying movement has brought an upward tendency in prices, beginning with pig iron and passing on to semifinished and finished material. There is no doubt the flow of orders to the Continent has been checked and many English works are already feeling the benefit. The Staffordshire wrought iron trade has been among the hardest hit of British industries but even here there are signs that the trade is shaking itself free from the strangle hold of Belgian and French competition.

Local rollers of strip, angles and

Sterling $4.85

bedstead tubes who formerly consumed foreign billets are now unable to obtain them and have bought freely at English works from £6 5s ($30.31) to £6 10s ($31.52). This applies also in the Middlesbrough district where steelworks are consuming larger quantities of British semifinished. Some small sales of Belgian iron have been arranged, costing about £7 5s ($35.16) delivered, in the Black Country, but in most cases Continental makers stand pat.

Pig iron is a firm market in all the British centers. Buying is not what it was in Northamptonshire because consumers bought freely at £2 17s 6d ($13.93) and consider £2 19s ($14.29) too high. Derbyshire makers are content to keep to the standard of £3 2s 6d ($15.15) and have sold fair quantities of iron. A furnace has been started in Northampton and if the output of the district is to be absorbed demand must expand faster than at present. In the Middlesbrough district there is talk of increasing production of hematite at the end of the month, when two furnaces will be lit at Jarrow. Hematite has been in good demand both for the local market and for the Midlands. In regard to No. 3 pig iron the price is still £3 7s ($16.24), although supplies are so

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, March 25	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$16.25	3 7 0*	$16.49	3 8 0	$16.49	3 8 0	$16.49	3 8 0
Basic	15.76	3 5 0	15.76	3 5 0	15.76	3 5 0	15.76	3 5 0
Basic-bessemer	17.58	3 12 6†	15.76	3 5 0	15.76	3 5 0	15.76	3 5 0
Hematite, Phosphorus 0.02-0.05	17.70	3 13 0	23.66	605*	.....	.....	17.46	3 12 0
SEMIFINISHED STEEL								
Billets	$30.92	6 7 6	$25.46	5 5 0	$25.46	5 5 0	$25.22	5 4 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.31	6 5 0
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$31.53	6 10 0	$31.53	6 10 0	$32.01	6 12 0
Merchant bars	1.79c	8 5 0	1.35c	6 3 0	1.35c	6 3 0	1.36c	6 4 0
Structural shapes	1.66c	7 7 6	1.11c	5 1 0	1.11c	5 1 0	1.12c	5 2 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.39c	6 6 0	1.39c	6 6 0	1.38c	6 5 0
Sheets, black, 24 gage	2.28c	10 10 0	2.26c	10 5 0	2.26c	10 5 0	2.50c	11 7 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	3.01c	13 13 9	3.01c	13 13 9	3.43c	15 12 0
Bands and strips	2.17c	10 0 0	1.40c	6 7 6	1.40c	6 7 6	1.40c	6 7 6
Plain wire, base	2.06c	9 10 0	1.71c	7 15 0	1.71c	7 15 0	1.71c	7 15 0
Galvanized wire, base	2.93c	13 10 0	2.17c	9 17 6	2.17c	9 17 6	2.20c	10 0 0
Wire nails, base	2.39c	11 0 0	1.80c	8 3 9	1.80c	8 3 9	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.37	0 18 0	.....	.....	.....	....	$ 6.79	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.25	3 7 0	$18.57	475(2)	$16.68	600	$18.51	78
Basic pig iron	15.76	3 5 0	19.94	510(1)	16.96	610	20.88	88
Furnace coke	3.52	0 14 6	5.87	150	5.56	200	5.10	21.50
Billets	31.53	6 10 0	23.07	590	25.99	935	28.72	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.68c	7 15 0	1.36c	755	1.41c	1,085	1.52c	141
Shapes	1.71c	7 17 6	1.26c	700	1.22c	940	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6‡	1.54c	855	1.46c	1,125	1.71c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.92c	1,620	2.70c	2,080	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.96c	13 12 6	3.69c	2,050	3.84c	2,950	3.78c	350
Plain wire	2.12c	9 15 0	1.89c	1,050	2.08c	1,600	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.76c	1,350	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 14s 6d ($3.52) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

scarce that makers could easily get a premium.

The prospect of dearer pig iron in the west coast area has made consumers realize the importance of forward contracts and there has been more inclination to transact this class of business. Stocks have rapidly reduced, and order books have a much healthier appearance, shipments taking place regularly to the Continent, Scotland, and South Wales. It is thought the first expansion of operations will probably take place at Moss Bay, and a recommencement of blasting at Cleator Moor at an early date is also anticipated. Steelworks at Barrow and Workington are good customers. Their order books have been strengthened recently, and rail, merchant and hoop mills are all operating. Steelworks in the Middlesbrough district, especially those rolling ship plates are making better time, although the capacity is so enormous that it is unlikely the whole plant will be able to operate for some time. Rolling stock builders on the whole are busy and are placing regular orders for various classes of finished material. Automobile makers are also active in preparation for the coming season and take a good deal of special steel in bars, forgings and castings from the Sheffield works. While the steel association has not deemed it desirable to make any alteration in prices of heavy steel, there are indications of stiffening in material outside the control of the association, and small bars lately ruling at £7 15s ($37.58) to £8 ($38.80) are still frequently quoted at the latter figure. But there is an attempt to force up the price to £8 5s ($40.01).

Probably the only section in which values show weakness is galvanized sheets, which are 2s 6d ($.60) cheaper. Buying has not been so active either in Birmingham or South Wales, although makers have no anxiety as to employment at the works knowing that their order books will insure continuous operation for some weeks. At the same time they cannot afford to give much away on prices, as they are paying more for sheet bars and fuel.

An important decision has been reached in the tin plate trade. More than 80 per cent of the mills have supported a scheme to substitute the compulsory stop week by a pooling arrangement under which a penalty of 2s 6d ($.60) per box per month is to be paid for overproduction and the same figure allowed for underproduction based on the percentage quotas to the various mills. The minimum price is being adhered to but it is thought the new scheme will obviate the necessity of a minimum price, and that in actual practice it will probably raise the price of all plates. The present price is 18s ($4.37) and on that basis a small amount of business is being put through. Most mills are well off for orders and some good inquiries have been in the market from European countries, especially France.

German Exports Hold

Berlin, March 9.—(*European Staff Service*)—Exports of iron and steel from Germany during 1928 were 4,719,430 metric tons, and with the addition of scrap they totaled 5,029,905 tons. Compared with 1927, and excluding scrap last year's exports were 9.3 per cent higher, but they were 3.70 per cent less than in 1926. It is to be noted, however, that exports of iron and steel in December, 1928, were 298,890 metric tons, against the monthly average for the year of 419,160 tons. This was due to effects of the Ruhr stoppage which prevailed through November. If this had not occurred, German iron and steel exports for 1928 would have exceeded even the high tonnage of 1926.

Among the principal items shipped from Germany in 1928, pig iron figured at 254,705 metric tons, against 320,211 tons in 1927 and 466,265 tons in 1926, indicating that Germany's foreign trade in pig iron is deteriorating. Exports to the United States were particularly small. The tonnage of bars, shapes, hoops and bands exported was 1,131,365 metric tons, compared with 940,260 tons in 1927 and 1,163,759 tons in 1926.

Luxemburg Pig Iron at Highest Point

Brussels, March 9.—(*European Staff Service*)—During January, 1929, Luxemburg produced more pig iron than at any time in her history, the tonnage being 241,639 metric tons, against 240,234 tons, the previous high mark, in March, 1928. The January tonnage included 238,297 tons of basic bessemer, 3272 tons of foundry and 20 tons of gray forge pig iron.

January output of steel ingots and castings was composed of 222,955 tons of basic bessemer, 990 tons of open hearth and 672 tons of electric steel. The following table gives figures for January, 1929, compared with the monthly averages of the three preceding years and 1913, in metric tons:

Metric tons

Mon. ave.	Furnaces on last day	Pig iron	Steel ingots and castings
1913	....	212,320	111,355
1926	40	209,295	186,980
1927	39	227,710	200,595
1928	38	230,840	214,315
1929			
Jan.	38	241,639	224,617

French Coke Near High

Paris, March 11.—(*European Staff Service*)—Production of coke at French collieries during January, 1929, was 384,519 metric tons, as compared with 387,420 tons, the highest mark, in December, 1928. Of coke imported, 301,611 tons came from Germany, 77,603 tons from Holland, 57,750 tons from Belgium and Luxemburg, 1095 tons from Great Briain. Italy took the largest tonnage of coke exported, with 26,735 tons, followed by Switzerland with 7063 tons, Belgium and Luxemburg, Spain, Morocco, Indo-China, etc. The following table gives figures:

Metric tons

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1926	313,950	462,915	39,320
1927	339,015	395,580	33,430
1928	366,660	447,330	34,810
1929			
Jan.	384,519	438,059	37,443

New Records by France

Paris, March 11.—(*European Staff Service*)—Record figures of production were reached by French blast furnace stacks and steelworks during January, 1929. The output of pig iron was 905,000 metric tons, as compared with the previous high mark of 880,000 tons in December, 1928. January output consisted of 709,000 tons of basic bessemer pig iron, 100,000 tons of phosphorus foundry pig iron, 2000 tons of phosphorus gray forge iron, 13,000 tons of semiphosphorus iron, 19,000 tons of hematite foundry pig iron, 38,000 tons of hematite pig iron for refining, and 24,000 tons of ferroalloys. There were 157 furnaces operating Jan. 31, against 153 on Dec. 31, 1928.

Output of steel ingots and castings in January was 837.000 metric tons, compared with 834,000 tons, the previous high mark, in October, 1928. January output consisted of 819,000 tons of ingots and 18,000 tons of castings. This tonnage was composed of 579,000 tons of basic bessemer, 239,000 tons of open hearth, 5000 tons of acid bessemer, 1400 tons of crucible and 12,600 tons of electric steel. The following table gives figures:

Metric tons

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	131	433,940	390,580
1926	155	785,965	702,500
1927	142	774,785	689,610
1928	153	841,415	782,995
1929			
Jan.	157	905,000	837,000

German Iron Output Up

Berlin, Feb. 28.—(*European Staff Service*)—Output of pig iron in Germany during January is in excess of the monthly average for 1928. The January output was composed of 696,640 tons of basic bessemer pig iron, 209,506 tons of ferroalloys, 97,622 tons of hematite pig iron, 86,881 tons of foundry pig iron, 3520 tons of acid bessemer pig iron, 2402 tons of direct castings, and 1049 tons of gray forge pig iron. Notwithstanding four less furnaces were operating, the output increased, indicating the efficiency of the works continues to gain.

Output of steel ingots and castings is only about 1200 tons below the maximum tonnage, reached in January, 1928, with 1,470,936 tons. It was composed of 1,445,127 tons of steel ingots and 24,526 tons of steel castings. The ingot production included 750.882 tons of basic open hearth, 656,715 tons of basic bessemer, 18,571 tons of acid open hearth and 15,501 tons of crucible and electric steel, and 3458 tons of ingot iron.

The following table gives figures for January, 1929, compared with the monthly averages of the three preceding years and 1913, in metric tons:

Metric tons

Mon. ave.	Furnace on last day	Pig iron	Steel ingots and casting	Finished steel
†1913	.....	909,640	993,640	970.240
1926	*109	803,625	1,028,470	856.340
1927	*116	1,091,875	1,359,225	1,069,930
1928	*101	984,700	1,209,770	963,550
1929				
Jan.	97	1,097,980	1,469,653	1,001,824

†Present boundaries.
*Last day of year.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

KRUPP NIROSTA CO. INC., Watervliet, N. Y., H. G. Batcheller president, has bought from the Crucible Steel Co. of America three patents covering the analysis and manufacture of Resistal corrosion and heat-resisting steel. The Crucible Steel Co. has acquired an interest in the Krupp Nirosta Co. The Crucible Steel Co. of America is now licensed to manufacture under all patents of the Krupp Nirosta Co. Other licensees include Central Alloy Steel Corp., Ludlum Steel Co., Babcock & Wilcox Tube Co., Firth-Sterling Steel Co., Spang, Chalfant & Co., Lukens Steel Co. and Wallingford Steel Co. Rights under the newly purchased patents automatically pass to these companies.

* * *

HENRY LINDAHL FOUNDRY & MACHINE CO. is the new name adopted by the former Henry Lindahl Machine Co., Chicago, manufacturer of gray iron and semisteel castings.

* * *

S-P MFG. CO., Cleveland, has moved its activities to a plant at 7209 Platt avenue. Its capacity for the manufacture of air-operated chucking equipment will be increased.

* * *

VAN GERRY MACHINE WORKS, Mt. Vernon, Wash., has been taken over by Frank Van Valkenburg, who has bought the interest of his partner, William Gerry.

* * *

NATIONAL ACME CO. has removed its Detroit office and stockroom to a ground floor section at 2826 East Grand boulevard. The office is in charge of A. O. Bredemere.

* * *

CENTURY ELECTRIC CO., St. Louis, has established a stock of its motors in the Hess-Strickland Transfer & Warehouse Co.'s plant at Birmingham, Ala. This will be operated from the company's office at 420 Atlanta Trust Co. building, Atlanta, Ga.

* * *

AUTOMOTIVE FAN & BEARING CO., Jackson, Mich., has bought the Johnson & Walter Mfg. Co., Detroit, manufacturer of metal stampings and automotive products. Charles W. Walters, president of the latter, will be retained to manage the Detroit plant. Eventually manufacturing will be concentrated at the Jackson plant.

* * *

MELLING FORGING Co. and Reliance Engineering Co., Lansing, Mich., have been merged by exchange of stock and will be operated as one concern.

* * *

SUPERIOR STEEL CORP., manufacturer of hot and cold-rolled strip steel at Carnegie, Pa., will move its general offices about April 1 from the Union Trust Building, Pittsburgh, to room 3122 Grant building.

* * *

DORSELL PRODUCTS CORP., Detroit, has been formed to handle sales in Detroit territory for the Kinite Corp., Shaler Lock Co., The Shaler Co., National Rivet Co. and Special Stamping Co. P. H. Door is president, Herman H. Fleer vice president and general manager, and William Fleming Jr., secretary and treasurer. Offices are at 5187 Loraine avenue, Detroit.

* * *

PITTSBURGH CRUCIBLE STEEL CO., Pittsburgh, has moved its sales office at Detroit to 5-230 General Motors building, where larger quarters are available. Fred L. Lawrence, has been made resident metallurgist, to devote his time to Detroit customers. Sales personnel includes R. K. Carson, D. G. Campbell, and W. W. Noble, district sales manager.

* * *

AMERICAN SHIP BUILDING CO., Cleveland, has organized an industrial division to utilize facilities at the Cleveland and Lorain plants for the manufacture of blast furnace and steelworks equipment and to execute contracts for heavy forging, machine work and plate and structural shop work. C. H. Bradley has been appointed head of the new division. He was chief engineer of the Variety Iron Works, formerly in Cleveland.

* * *

BYLLESBY ENGINEERING & MANAGEMENT CORP. has contracted with the Koppers Construction Co., Pittsburgh, for a by-product coke and gas plant at Sheboygan, Wis. It will consist of 15 producer gas underfired Becker-type ovens with annual coal carbonizing capacity of 45,000 tons of coal and daily production of 1,500,000 cubic feet of gas. It will have Koppers coal and coke handling systems.

* * *

SENIOR & PALMER INC. has been organized by Frank S. Senior, Edward P. Palmer and Howard H. Dooz. each of whom was formerly connected with the Arthur McMullen Co., New York. Offices have been opened at 50 Church street. The company will act as engineer and contractor.

* * *

DRY QUENCHING EQUIPMENT CORP., New York, a subsidiary of the International Combustion Engineering Corp., in conjunction with Stevens & Wood Inc., will begin construction at the Court street plant of the Consumers Power Co., Flint, Mich., of a dry quenching plant to handle 280 tons of coke per day. The plant is designed to supply 280,000 pounds of high pressure steam daily, now wasted.

* * *

SUPERIOR STEEL CORP. stockholders have approved the sale of 15,000 shares of additional stock, making the total outstanding 115,000 shares. George F. Buss, Pittsburgh, has been elected a director to succeed E. C. Lynch. Other directors were re-elected. The company, with headquarters at Pittsburgh, reports net profit before taxes and interest in February as $50,831, compared with a net of $54,314 in January.

* * *

COSTELLO ENGINEERING CO., Pittsburgh, has been awarded the contract to furnish all furnaces for the new six-sheet mill addition to the Continental Steel Corp., Kokomo, Ind. The furnaces include two double chamber patented Costello continuous pair furnaces, two single chamber patented Costello continuous pair furnaces, six double sheet furnaces, three annealing furnaces, and three galvanizing kettle settings. The Kokomo works produces black and galvanized sheets.

* * *

NORTHERN EQUIPMENT CO., Erie, Pa., has appointed R. L. Sittinger, 80 Federal street, Boston, its representative in New England for its system of boiler feed control. He succeeds Harry H. Leathers, with whom he has been associated for sev-

eral years, the latter relinquishing this account to devote his time to other interests. The Northern company has also given its Toronto territory to Peacock Bros. Ltd., Montreal, as an increase in its sphere of activity.

* * *

BUTLER AVIATION CORP., Kansas City, Mo., a subsidiary of the Butler Mfg. Corp., builder of airplanes, has elected E. E. Norquist president, W. A. Knapp vice president, Roy S. Camp vice president, F. A. Rufi secretary, and Oscar D. Nelson treasurer. Wilton M. Briney has been made sales manager.

* * *

MARINE WIRE CO., Anderson, Ind., will install additional equipment within the next few weeks. Three units of fine wire enameling machinery are to be added at once. During the last year the company has doubled capacity.

* * *

MUSKEGON PISTON RING CO., Muskegon, Mich., is planning to increase its plant and productive capacity about 50 per cent in order to meet demand. Its customers include the Ford Motor Co. and Chevrolet Motor Car Co.

* * *

WESTINGHOUSE ELECTRIC & & MFG. CO., East Pittsburgh, Pa., will remove its plant at South Bend, Ind., to Cleveland, merging it with the plant already there. The South Bend works has produced street and floor-lighting equipment.

* * *

B F. STURTEVANT CO., Hyde Park, Boston, is establishing a new branch office April 1 at Denver, to handle sales in Montana, Utah, Wyoming, Colorado and New Mexico, in charge of John McCracken, who has been head of the order department at the western plant at Sturtevant, Wis., near Racine.

* * *

ORTON CRANE & SHOVEL CO., Chicago, has appointed the Mott & McElrath Engineering Corp., 249 West Eighteenth street, New York, its representative in that district. The Mott & McElrath corporation also represents the Williamette-Ersted Co., Portland, Oreg., manufacturer of truck cranes.

* * *

GILBERT & BARKER MFG. CO., Springfield, Mass., manufacturer of gasoline pumps, has announced organization of a subsidiary, the Gilbert & Barker Mfg. Co. of Australia Ltd., for the manufacture of pumps in Australia. Directors include F. H. Bedford Jr., C. C. Ramsdell, president of the parent company; S. C. Hope, P. H. Bills and J. G. O'Connor. I. C. Jacobs, secretary-treasurer, and John Lightcap have been sent to Australia to organize the branch, the latter being factory manager. The company also announces completion of organization for a Canadian subsidiary.

* * *

RYAN CAR CO., Chicago, probably will acquire the C. D. Edwards Mfg. Co., Albert Lea, Minn., manufacturer of highway construction and road grading equipment. W. M. Ryan, president of the former company, has bought the entire stock of the Edwards company as the first step.

* * *

FOOTE CO. INC., Nunda, N. Y., manufacturer of roal building machinery, has been reorganized. The company is now under the control of Fred L. Dake, president; Ray Brooks, vice president in charge of sales, and Clifford Messenger, third member of the new ownership. Charles E. Foote retires as president and owner of the business.

* * *

WILSON-BROWN INC., machine tool builders' representative, New York, will move from 2 Rector street to larger quarters at 702, 30 Church street, effective May 1. The company represents the R. K. LeBlond Machine Tool Co., Cincinnati; Carlton Machine Tool Co., Cincinnati; Cincinnati Shaper Co., Cincinnati; Universal Boring Machine Co., Hudson, Mass.; W. F. & John Barnes Co., Rockford, Ill., and the Liberty Machine Tool Co., Hamilton, O.

* * *

CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass., has elected the following officers: President, Homer Gage; vice presidents, John F. Tinsley, Frederick W. Howe and Irving H. Verry; general manager, John F. Tinsley; treasurer, Edward F. Green; assistant treasurer, Fred J. Bowen; clerk, John B. Syme. Directors include the officers and S. B. Alexander, George Crompton, Thomas H. Gage, Albert A. Gordon, Frank P. Knowles, Henry F. Phelps, Pierpont L. Stackpole, Charles M. Thayer and George E. Warren.

* * *

FINISHED STEEL PRODUCTS CO. has been organized at Pine Bluff, Ark., and will build a plant for the manufacture of steel parts for caterpillar tractors, engines, oil refining machinery and other types of machinery. F. S. Dilley, president of the Standard Brake Shoe & Foundry Co., is president. C. K. Elliott is vice president and C. C. Handley secretary and treasurer. The officers and E. S. Eilley and A. F. Triplett form the board of directors. Pine Bluffs Iron Works has been awarded the contract for the steel building. Electric drive will be used and the plant will be served by natural gas.

* * *

PENN BRIDGE CO., College Hill, Beaver Falls, Pa., will resume operations within 60 days after being shut down 17 months. The company has been reorganized and financed. The new officers are: President, J. M. Grier, Pittsburgh; vice president in charge of operations, Charles A. White, New Brighton; vice president and chief engineer, Louis Vincent, Pittsburgh; secretary, Homer H. Swaney, Beaver Falls; and treasurer, A. S. McCombe, Pittsburgh.

Foundry Equipment Up

Cleveland, March 26.—Foundry equipment orders in February gained over January, according to the Foundry Equipment Manufacturers' association. Following are monthly comparisons:

	1926	1927	1928	1929
Jan.	168.2	180.4	132.7	180.5
Feb.	154.9	198.0	123.6	197.0
Mar.	157.3	131.1	138.6	.....
Apr.	113.2	130.0	107.7	.....
May	128.5	134.8	335.6	.....
June	133.5	138.4	149.1	.....
July	127.3	89.9	94.8	.....
Aug.	141.2	106.4	278.0	.....
Sept.	114.0	80.4	170.0	.....
Oct.	140.5	98.0	185.0	.....
Nov.	133.4	95.8	197.8	.....
Dec.	181.0	106.8	166.5	.....

Base: Average monthly shipments for 1922-23-24.

Tractor Shipments Off

Washington, March 26.—February shipments of electric industrial trucks and tractors dropped, according to the department of commerce. Monthly comparisons follow:

	Domestic Tractors	All other Types	Exports
1928			
January	5	98	9
February	15	86	18
March	18	95	16
April	9	121	6
May	8	93	13
June	6	96	14
July	5	87	15
August	5	85	6
September	11	102	5
October	5	109	20
November	9	117	6
December	10	126	17
1928 Total	106	1,215	145
1929			
January	4	*129	19
February	9	121	3

*Revised.

Election Hints Merger

Eventual consolidation of the Bendix Brake Co., South Bend, Ind., with the Stromberg Carburetor Co. of America Inc., Chicago, is seen as a result of the recent election of Vincent Bendix, president of the Bendix company, to the directorate of the Stromberg company. It is stated in financial quarters there has been some discussion of consolidation of the two companies, but that no details have been announced.

independent Sheet Sales Hold to High Rate

Sheet sales, production and shipments by independent mills in February remained close to the daily rate of January, though the shorter month brought down the total. The daily rate of February sales was 13,910 tons, only 231 tons below the rate in January. February production was at the daily rate of 11,659 tons, 967 tons lower than January, while shipments were 11,637 tons daily in February, only 47 tons below the average in January.

The total of February sales was 389,496 tons, 48,894 tons less than January. February production amounted to 326,468 tons, a reduction of 64,936 tons. February shipments were 325,848 tons, 36,381 tons less than in January. The report from the National Association of Flat Rolled Steel Manufacturers for February follows:

	Net Tons	Per cent of capacity
Total sales for month	389,496	130.8
Total production	326,468	109.7
Total shipments	325,848	109.5
Unfilled tonnage as of March 1	706,955	237.5
Approximate finished stock on hand awaiting shipments	127,383	42.8
Approximate in stock, unsold	61,058	20.5

Total number of hot mills in the United States is 722 having a capacity for February, 1929, of approximately 440,600 net tons and the percentage of the capacity to which the figures shown are related is 67.6.

A monthly comparison of sales, production and shipments for the past two years is afforded by the following table:

	Sales	Production	Shipments
January, 1927	261,357	256,856	239,019
February	241,951	282,171	261,412
March	345,900	359,340	338,436
April	292,965	316,100	300,858
May	212,337	309,360	302,759
June	224,321	300,706	281,395
July	230,715	237,243	252,034
August	177,647	266,645	266,713
September	258,427	220,919	230,443
October	234,358	245,765	232,626
November	344,519	232,041	224,789
December	530,197	260,130	221,689
January, 1928	302,921	316,541	274,126
February	266,210	330,565	298,420
March	399,441	366,127	359,532
April	284,070	327,909	327,674
May	250,316	349,367	326,324
June	318,902	311,629	308,741
July	333,357	267,685	278,310
August	254,397	329,396	324,691
September	370,936	318,907	322,876
October	344,614	369,243	354,925
November	346,041	358,402	307,790
December	323,421	302,182	296,687
January, 1929	438,390	391,404	362,229
February	389,496	326,468	325,848

Iron Ore Prices Advanced

(*Concluded from Page* 889)

consecutive years. The upper and lower rail rates on ore have been in effect six consecutive years.

The market for ore has opened this year earlier in the season than in 1927 or 1928. Ore sellers forecast a heavier movement this year than last, some believing that it will go as high as 60,000,000 tons. Supplies on hand at furnaces and lower lake docks March 1 were 3,588,449 tons below the comparable date of 1928, as shown by the following report from the Lake Superior Iron Ore association:

	Tons
Ore consumed in January	5,195,034
Ore consumed in February	4,818,811
Decrease in February	376,223
Ore consumed in February, 1928	4,394,931
Ore on hand at furnaces, March 1, 1929	20,474,934
Ore on Lake Erie docks, March 1, 1929	4,939,417
Total at furnaces and Lake Erie docks, March 1, 1929	25,414,351
Total, March 1, 1928	29,002,800

Algoma Earnings Grow

Toronto, Ont., March 26.—Net earnings of the Algoma Steel Corp. for the eight months ended Feb. 28 totaled $1,914,535, compared with $595,088 in the corresponding eight months a year ago.

An order for 4000 pistons was recently received by the Ohio Piston Co., Cleveland, from Abo, Finland. Some recent shipments to that country by the Ohio company are for trans-shipment to Russia.

Obituaries

LEWIS J. MERRITT, 81, developer and reputed discoverer of the Mesabi iron ore range of Minnesota, died March 21 in Pasadena, Calif., where he had resided for the past 32 years. For some years Mr. Merritt was a co-director with John D. Rockefeller Sr. and John D. Rockefeller Jr., in iron mining, steamship and railroad companies in the Great Lakes district.

* * *

Roscoe B. Jackson, 50, president of the Hudson Motor Car Co., Detroit, since Jan. 30, 1923, died in Mentone, France, March 19.

* * *

George Duncan, formerly superintendent of the lapweld department of the National Tube Co., McKeesport, Pa., died March 17.

* * *

Ransom P. Kettenring, 65, former vice president of the Defiance Machine Works, Defiance, O., died at his home in that city.

* * *

John H. Abeel, 86, retired member of the firm of Abeel & Bros., 190 South street, New York, iron and steel merchants, died recently at his home in that city.

* * *

Col. John S. Muckle, 68, widely known engineer, died at his home in Haverford, Pa., March 20. He was head of the engineering firm of Muckle & Co. until his retirement several years ago. Colonel Muckle held more than a score of patents.

* * *

Fred H. Jarm, 47, for the past 10 years chief chemist and metallurgist for the Hubbard Steel Foundry Co., East Chicago, Ind., died March 7. Mr. Jarm started his business career with the Chas. C. Kawin Co., Chicago, about 1906. He later resigned to become connected with the Farrell Foundry Co., now the Farrell-Birmingham Co., Ansonia, Conn. He served during the war and in 1918 became connected with the Hubbard Steel Foundry Co.

* * *

Willard L. Velie, acting president of the Velie Motors Corp., Moline, Ill., and president of the Mono Aircraft Corp., that city, died suddenly there March 20. His father, W. L. Velie, who found the Velie Motors Corp., died several months ago.

* * *

Francis A. Erickson, former superintendent of the Indiana Steel & Wire Co., Muncie, Ind., and for many years an executive in New England wire mills, died recently at his home in Worcester, Mass. He was a native of Sweden.

* * *

Samuel Rea, 73, former president of the Pennsylvania railroad, Philadelphia, died March 24. Mr. Rea retired under his company's pension system in September, 1925, remaining as a member of the directorate. Outstanding among his accomplishments was the construction of the Pennsylvania railroad's tubes under the Hudson and East rivers and the erection of the Pennsylvania station in New York.

Mr. Rea was born in Hollidaysburg, Pa., and first entered the employ of the Pennsylvania as rodman on the western branch. When the financial difficulties of 1873 halted all construction work, he entered the employ of an iron and steel company. As soon as possible he resumed his railroad work, rising steadily until 1889, when he resigned to become vice president of the Maryland Central railroad. He returned to the Pennsylvania in 1892 and later was elected president.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

LEWISTON, ME.—American Electric Metal Corp. has awarded the structural steel contract for a building to American Bridge Co.

BALTIMORE—Glenn L. Martin Co., Glenn L. Martin president, Leland and Ponca street, plans to start construction shortly on its first airplane manufacturing plant unit, to be 300 x 933 feet. (Noted March 7.)

*

ATTLEBORO, MASS.—Attleboro Steam & Electric Co., 24 South Main street, E. Tregroning manager, plans the construction of a power house on West street.

CHELSEA, MASS.—Intercontinental Pipe & Mining Co. plans the construction of a foundry for the manufacture of cast iron pipe.

SPRINGFIELD, MASS.—Springfield Bronze Co. is to build an addition to its plant at East Springfield, Mass., and will install additional oven equipment.

WORCESTER, MASS.—Arcade Malleable Iron Co. is erecting a one story addition 43 x 75 feet, to its foundry.

CAMDEN, N. J.—Rundle Mfg. Co., Twenty-seventh street and Cleveland avenue, Milwaukee, has awarded the contract for concrete reinforcing bars for a foundry and enameling building to Taylor, Davis Inc. (Noted March 21.)

NEWARK, N. J.—Stacey Lane Inc. has been incorporated with $100,000 in preferred stock and 500 shares no par value stock to manufacture welding machines by Samuel Schwartz, Newark, attorney.

MT. VERNON, N. Y.—Eagle Bronze Works, 10 East Bleecker street, soon will take bids on a general contract for an addition. The contract also includes improvements to the present plant. G. M. Bartlett, 103 Park avenue, New York, is the architect.

AUBURN, PA.—Allegheny Steel Co., now in control of the Seamless Tube Co.'s works here, is remodeling the main building of the works and installing new machinery.

BRADFORD, PA.—Taylor Aircraft Corp., formerly of Rochester, N. Y., has acquired a tract of land here adjacent to the municipal airport on which it plans the immediate construction of an airplane manufacturing plant. L. S. Bannister is business manager of the company.

CRAFTON, PA.—Fire damaged the 2-story building occupied by the Cook Automatic Scales & Electric Co.

ERIE, PA.—National Foundry Co. will begin enlargements to its plant immediately. A machine shop 145 x 340 feet, will be erected. The National Foundry Co. recently purchased the Williams Foundry & Machine Co., Akron, O.

IRVINE, PA.—National Forge & Ordnance Co. will increase its production capacity. A machine shop 160 x 300 feet will be erected. Two electric furnaces will be built, with soaking pits and heating units for new forging capacity. Cranes of 10, 30 and 60-ton capacity will be purchased and new shipping facilities will be provided. Construction will begin soon.

LANCASTER, PA.—Hubley Mfg. Co. has completed the construction of an office building and now is working on the plans for an addition to its foundry that will give additional space for 40 molders.

PITTSBURGH—Pittsburgh Gray Iron Foundry Co., South and Walker streets, is completing plans for a one-story addition, 35 x 150 feet. Hunting, David & Dunnells, Century building, Pittsburgh, are the architects and engineers.

PITTSBURGH—Pittsburgh Aviation Industries Corp. will manufacture an all-metal airplane in a temporary plant until the completion of the municipal airport, when activities will be transferred to the new location.

PITTSBURGH—Kerotest Mfg. Co., W. G. Swaney secretary, 2525 Liberty avenue, has awarded the general contract for a 3-story machine shop addition to Cuthbert Bros., Bessemer building. (Noted Feb. 21.)

PROVIDENCE, R. I.—Prairie Window Ventilator Corp. is planning a plant addition and new equipment with a view of double present output.

Resale Equipment News

MATERIAL used in manufacture of pocket knives by the Warwick Knife Co., Warwick, Orange county, N. Y., will be sold at bankruptcy sale April 2, at the plant. G. H. Strong is trustee. At the same time the real estate and plant will be sold. The plant has 11,000 square feet floor space, equipped for manufacture of cutlery, electrically equipped.

* * *

Personal property of the F. W. Niebling Co., manufacturer of refrigerating machinery, Cincinnati, O., was sold at receiver's auction March 26. The equipment included lathes, drill presses, arbor presses, hack saws, grinders, and other devices for light manufacturing.

* * *

Mono Aircraft Corp., Moline, Ill., has been sold to the Lambert Aircraft Corp., St. Louis, Mo. Details of the sale were completed March 20. Sale of the Mono airplane engine patents, machinery and equipment, valued at $400,000, also was completed at the same time. They were purchased by the Hurricane Aircraft Engine Co., of St. Louis.

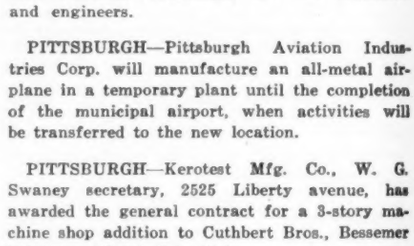
* * *

Assets of the Orna-Metal Corp., bankrupt, Buffalo, were offered for sale at public auction at 27 Carolina street, March 27. The property included a large variety of machinery, equipment, finished and unfinished metal products, scrap iron, sheet metal and office furniture. The sale was held by Gus Rosen, auctioneer, Cleveland.

Sales Calendar

March 29.—McMyler-Interstate Co., Bedford, O., offering assets for sale, bids at first offering having been refused.

Western States



SAN FRANCISCO—Enterprise Foundry Co., 320 Fremont street, is considering rebuilding the part of its plant recently damaged by fire.

PORTLAND, OREG.—Prest-O-Lite Co. has

purchased a 4-acre site in the Kenton industrial district for a new plant which it plans to erect immediately.

MIDVALE, UTAH—Western Steel & Foundry Co., W. L. Booth, president and general manager, contemplates the construction of foundry improvements and additions.

PUYALLUP, WASH.—At an election last week citizens approved a utility bond issue for $250,000 to acquire the local power plant and distributing equipment of the Puget Sound Power & Light Co.

WENATCHEE, WASH.—Hadley Auto Radiator Works has awarded the contract for construction of a factory building on South Wenatchee avenue.

East Central

CHICAGO—Acme Aluminum Foundry Co., 814 West Seventy-fifth street, plans the construction of a 2-story foundry and office addition, 50 x 125 feet.

HARVEY, ILL.—Buda Co. has awarded the contract for the construction of an addition to its Halsted street foundry to Austin Co., 16112 Euclid avenue, Cleveland. The building, to be a cleaning house for the foundry, will be 1-story, 60 x 100 feet.

SOUTH CHICAGO, ILL.—Interstate Iron & Steel Co., Monroe building, Chicago, has awarded the contract for structural steel for a 10-inch merchant bar building to McClintic-Marshall Co.

INDIANA HARBOR, IND.—Youngstown Sheet & Tube Co., Youngstown, O., has awarded the structural steel contract for extensions to open-hearth buildings to McClintic-Marshall Co.

LAPORTE, IND.—Columbia Metal Products Co., 360 East Grand avenue, Chicago, plans to move here, where it will occupy the plant of the Great Western Mfg. Co.

DETROIT—Contract for the construction of a power house addition for the Packard Motor Car Co. at its East Grand boulevard plant has been awarded to W. J. C. Kaufmann Co., 10610 Shoemaker avenue.

DETROIT—Chadwick Mfg. Co., 12281 Turner street, manufacturer of tools, dies, etc., plans the construction of an addition and plant alterations. Verner, Wilhelm & Shreve, 750 Book building, Detroit, are architects for the project.

DETROIT—Johnson & Jennings Co., 104 North Solvay avenue, has awarded the general contract for the construction of a foundry to Bennage & McKinstrie Co., 4612 Woodward street, Detroit.

JACKSON, MICH.—Jaxon Steel Products Co., manufacturer of automobile wheels, etc., division of General Motors Corp., Detroit, is having two unloading docks constructed. Austin Co., 16112 Euclid avenue, Cleveland, designed and is building the docks.

LANSING, MICH.—Bowd & Munson are architects for a group of buildings to be built here, including a power plant, laundry, children's building, etc.

LANSING, MICH.—Olds Motor Works has started work on a new 2-story building, 160 x 794 feet, to be used for shipping purposes. Reniger Construction Co. has the general contract. It is expected to be completed by May 1.

ALLIANCE, O.—Plans are under way for expansion at the plant of the Transue-Williams Steel Forging Corp., to include the installation of two new hammers, the erection of a store room, etc.

CINCINNATI—Aeronautical Corp. of America will occupy the 1-story building, 82 x 308 feet, to be constructed at Lunken airport. The company will manufacture airplanes.

CINCINNATI—Cincinnati Milling Machinery Co. has let the engineering and building contract for a new assembly and shipping building, 140 x 250 feet, to Austin Co., 16112 Euclid avenue. (Noted March 14.)

CLEVELAND—Big Four railroad, Big Four building, Cincinnati, has awarded the contract for the construction of an addition to the roundhouse, power house, etc., at Linndale yards, to Wellington-Miller Co., 4175 Dearborn street, Chicago.

CLEVELAND—Midland Steel Products Co., Madison avenue and West 106th street, has completed construction of a building for engineering research, equipped with modern facilities for automobile frame, brake and metal stamping research and engineering. (Noted Nov. 22.)

PORTSMOUTH, O.—Wheeling Steel Corp., Wheeling, W. Va., has awarded the structural steel contract for a mill building to J. E. Moss Iron Works.

TOLEDO, O.—France Foundry & Machine Co. is remodeling its gray iron shop and building an addition to take care of production and light jobbing work.

EDGERTON, WIS.—Wisconsin Power & Light Co., 16 North Carroll street, Madison, Wis., expects to start work April 1 on an improvement and enlargement of the hydroelectric generating plant at Fulton, near Edgerton.

FOND DU LAC, WIS.—Fond du Lac county board is about to let contracts for the erection of a 1-story warehouse and service shop, 60 x 120 feet, on Dixie street, for the purposes of the county highway commissioner. Plans are by F. J. Stepnoski, local architect. Martha M. Barrett is county clerk.

GREEN BAY, WIS.—The board of vocational education is about to award contracts to rebuild the machine shop of the vocational school, which was badly damaged by fire in February. H. O. Eiken is director of the school.

GREEN BAY, WIS.—Paper Converting Machine Co., Day and North Quincy street, maker of paper mill equipment, will close bids April 10 for the erection of a 1-story shop addition, 80 x 100 feet. J. Christman is construction superintendent.

JANESVILLE, WIS.—Northern Conveyor Mfg. Co., West State street, is preparing for the erection of a 1-story factory addition, 150 x 200 feet. H. E. Whitnall is president.

LA CROSSE, WIS.—Peoples Ice & Fuel Co., Second and Division streets, has engaged C. F. Ringer & Son, architects, 432 Broadway, Milwaukee, to make plans for a new 1-story artificial ice plant, 86 x 130 feet, to be equipped with a 100-ton ice machine, on which estimates are being taken.

MILWAUKEE—Wisconsin Telephone Co., 418 Broadway, has let the general contract to Theo. Stark & Co., 2300 Wisconsin avenue, for the construction of a new Blue Mound exchange building, 2-story, 106 x 107 feet, at 6808 Aetna court, in Wauwatosa. G. F. Crowell is chief engineer.

MILWAUKEE—Allis Automatic Screw Products Co., 5414 Burnham street, West Allis, Milwaukee, is building a brick and steel shop addition, 40 x 110 feet, and will install another battery of automatic machines.

MILWAUKEE—Unit Corp. of America has let contracts for the erection of an addition to its tractor accessory plant at 5301 Burnham street, West Allis, Milwaukee. W. H. Schmidt is president.

PRAIRIE DU SAC, WIS.—Contracts have been let by the Prairie du Sac Auto Co. for the erection of a 1-story and basement garage and repairshop, 48 x 72 feet.

RACINE, WIS.—The newly organized Cooper-Kumpf Mfg. Co. has taken a lease of the building at 821 Union street and is equipping it with machinery for the manufacture of fractional horsepower motors for industrial and domestic appliances and devices.

SAND CREEK, WIS.—Gilbert Bros., automobile dealers and repairmen, are building a 1-story garage and service building, 60 x 120 feet.

SHEBOYGAN, WIS.—The common council has instructed Pearse, Greeley & Hansen, consulting engineers, 6 North Michigan boulevard, Chicago, to prepare final plans and specifications for the proposed new municipal filtration plant.

SHEBOYGAN, WIS.—Gus Helming, 816 Erie avenue, is taking bids through W. C. Weeks, architect, for the construction of a garage and repair shop, 1-story, 60 x 115 feet, at Michigan avenue and Lower Falls road, in Sheboygan Falls, Wis.

WATERTOWN, WIS.—The municipal water commission is taking bids until April 8 for the following additions to the city pumping station: One 1000 gallon per minute centrifugal pump; one 85 to 90 horsepower industrial type engine, and one 75 horsepower motor. Ferd Schmutzler is secretary.

Canada

OSHAWA, ONT.—Farrwell Development Co. is establishing a machine shop which will employ about 30 men.

WALKERVILLE, ONT.—Structural steel for a plant addition for Dominion Forge & Stamp-

(*Continued on Page* 901)

Machinery

First Quarter Close to Record in Volume of Sales—Deliveries Remain Extended—All Industries Participate in Buying

BUYING of machine tools has been sufficient in the past three months to make that period stand out as close to the record. Makers find every line of industry taking additional equipment and no one branch is presponderant. So great has been the volume of bookings that sellers find present delay an obstacle to further selling. Some large buyers have closed for first quarter requirements and are about to issue lists for second quarter. At Chicago railroad requirements continue to come out. Electric companies are large buyers generally Crane buying continues active, with some large lots being placed. A feature of buying is the wide range of industry represented in the contracts placed. Lathes form an important feature of current buying.

New York, March 26.—The quarter now closing has been one of the most active in the local machine tool market in several years. The third quarter of last year may have been more active, but, according to some leading sellers, the margin is slight if it exists at all. Meanwhile, deliveries are becoming further extended and, in a number of cases, are proving a decided handicap to sellers.

While demand includes some large lists, a feature is the diversified line of industries it represents. Leading sellers state that they can point to no one particular industry as dominating demand and, at the same time, can suggest no one of importance that is not represented as a group, the railroads come nearest to proving the exception. There has been some buying by the New York Central and one or two others, but the orders have been relatively negligible.

An important inquiry involves a number of machines for the Intertype Co., Brooklyn, N. Y. Possibly 30 machine tools are involved, although a number of other miscellaneous items of equipment are specified. The Otis Elevator Co., Yonkers, N. Y., is preparing specifications on a number of machines and, meanwhile, is placing scattered orders. International Motors Co. continues a substantial buyer for its plants at New Brunswick, N. J., and Plainfield, N. J. Yale & Towne Mfg. Co., Stamford, Conn., has placed several machines during the past week and is figuring on additional equipment. The General Electric Co., Schenectady, N. Y., is still a substantial buyer, although it has closed on practically all of its recent list of 70 or 75 machine tools for its refrigerator and radio departments.

Pittsburgh, March 26.—Machine tool sales, featured by well diversified buying, are well maintained and indicate that total first quarter business will compare favorably with the corresponding period of preceding years. Inquiry is active and prospective work leads sellers to look for continued good buying into the second quarter. A fair volume of business pending for some time remains to be closed. The Westinghouse Electric & Mfg. Co. has closed on most of the tools of its first quarter list and is preparing to issue a list of its second quarter requirements. Considerable business still is pending in the crane market.

Cleveland, March 26.—Selling agents in this district report bookings of machine tools in good volume. The delivery situation still is tight. Single tool sales predominate. Many items still are desired for replacement. An attractive volume of inquiry was received during the week just closed from various sections, a large percentage of which urged immediate delivery. Dealers of used equipment are enjoying a steady business but are compelled to comb the district for equipment suitable for meeting customer requirements.

Chicago, March 26.—The machine tool market has been enlivened by further important inquiries, and sales are holding to a high level. Indications are that first quarter will close with sales volume substantially ahead of a year ago. Pullman Car & Mfg. Corp. has issued a list for its Birmingham, Ala., plant. This consists of three lathes, 20, 22 and 25-inch, and a 25-inch sliding bed gap lathe, a 24-inch shaper and a 5-foot radial drill. Chicago & North Western is inquiring for a 36-inch drill press, a 24-inch drill, a 14½-inch punch and shear, a combination journal turning and axle lathe and a double-end floor grinder, all motor driven. Santa Fe has added three 16-inch lathes to its large list. Both Santa Fe and Rock Island are expected to start buying shortly against their lists. Several important industrial lists are pending at Des Moines and Sioux City, Iowa, and several orders are pending at Davenport and Moline, Ill. A plant in central Illinois is inquiring for four lathes. Sales of drills and lathes were active during the week in the Chicago district, one order having been closed for a half dozen drills. Machine tool dealers have had their stocks of used tools sharply reduced in recent weeks.

CRANE ORDERS PLACED

Unstated number of electric cranes for General Steel Castings Corp., Baldwin, Pa., placed, five 75-ton cranes reported going to Alliance Machine Co., four 40-ton cranes to Shaw Crane-Putnam Machine Co. Inc. and four or five to Shepard-Niles Crane & Hoist Co.

Two 10-ton, 90-foot span electric cranes for American Copper Products Co., Elizabeth, N. J., to Shepard-Niles Crane & Hoist Co.

Among single orders are: One crawler crane for J. F. Cougan Contracting Co., New York, to Harnischfeger Corp.; also one 6-ton truck crane to Willamette-Ersted Co.; 12-ton used Orton crane, 90-foot boom, reported sold by Cornell Contracting Co., New York, through P. T. Cox Contracting Co., that city, used 25-ton locomotive crane for Gulf Refining Co. for installation in Philadelphia, to an unnamed seller.

CRANE ORDERS PENDING

One crawler crane for Carlton Construction Co.; one or two 2-yard steam cranes for Corson Construction Co.; 150-ton wrecking crane for Erie railroad; crane equipment for Hart & Early, New York, subway contractors, contemplated.

February Crane Sales Off

New York, March 26.—While electric overhead crane orders in February declined, January unfilled orders were heaviest in many months. The Crane institute reports 375 placed with an aggregate capacity of 5401¼ tons, and a value of $3,284,848.50, compared with 303 cranes, capacity 4142¼ tons, value $2,547,166.50., in January.

New orders invoice 149 cranes with a total capacity of 2070¼ tons, and valued at $1,172,850.60, compared with 173 cranes, capacity 1948, value $1,383,257.70, the month previous.

Shipments involve 97 cranes aggregating a capacity of 1011 tons and a value of $585,986.10, compared to 107 cranes, capacity 1567½ tons, valued at $851,514.34 in January.

Scrap Dealers To Confer

Washington, March 26.—The federal trade commission has announced that it will hold a trade practice conference for the iron and steel scrap industry, as requested by the Institute of Scrap Iron and Steel, New York. Yard dealers and brokers are invited to the conference.

Topics for discussion include adherence to specifications, defamation of competitors through false statements relating to products and financial standing, commercial bribery, selling below cost to injure a competitor, and failure to pass on credit for overweight.

Charles H. March, new member of the commission, will preside. The time and place have not yet been determined.

Mahon Earnings Higher

The financial statement of the R. C. Mahon Co., Detroit, structural steel fabricator and warehouse interest, for 1928 shows net income after depreciation and federal taxes of $369,859. Assets are given as $3,337,859, of which $1,868,490 are quick.

Construction and Enterprize

(*Continued from Page* 899)

ing Co. has been awarded to Canadian Bridge Co.

WALKERVILLE, ONT.—Allan & Earl Ltd., Equity building, Windsor, Ont., general contractors, have let a number of subtrades in connection with an addition to the plant of the Dominion Forge & Stampings Ltd., Walker road, here. Building to be 1-story, 90 x 120 feet, steel and brick construction.

BEAUHARNOIS, QUE.—The application of the Beauharnois Light, Heat & Power Co., 107 Craig street west, Montreal, Que., for approval of its plans for hydroelectric development between Lake St. Francis and St. Louis, on the St. Lawrence river, has been sanctioned by the Dominion cabinet. The initial development will consist of 500,000 horsepower. The complete development will be 1,500,000 horsepower. Consulting engineer is Fred B. Brown, 414 St. James street, Montreal, Que.

MONTREAL, QUE.—City council proposes to build a power plant here using the aqueduct canal. City engineers are studying the requirements of the plant with a view to calling for bids.

MONTREAL, QUE.—E. G. M. Cape & Co., Cathcart street, have contract for excavation, piling and foundations in connection with addition to plant of the Northern Electric Co. Ltd., Richmond and Richardson streets. Bids will be called next month for contracts for superstructure. Building to be 4 and 8-story, steel and brick construction. Architect is J. A. Despatie. (Noted March 14.)

ST. LAURENT, QUE.—Curtiss Reid Aircraft Co., 347 Craig street west, Montreal, Que., has let contract to C. E. Deakin, 698 St. Catharine street west, Montreal, for the erection of an airplane manufacturing plant here. B. G. De Hueck, 912 New Birks building, Montreal, is architect. Building to be 1 and 2-story, concrete foundation, steel and brick construction. Structural steel for the construction has been let to Canadian Vickers Ltd. (Noted Dec. 20.)

ISLAND FALLS, SASK.—Hudson Bay Mining & Smelting Co., developing the Flin Flon copper mine in northern Manitoba, has let several contracts in connection with the development of a power plant here. Main turbines and generators are being built by Dominion Engineering Works and Canadian General Electric Co., and structural steel has been awarded to Dominion Bridge Co.

West Central

CARROLL, IOWA—Carroll Airport Inc., S. D. Martin secretary, plans the construction of a hangar on the 100-acre aviation field here.

MINNEAPOLIS—Work has been started on the new warehouse for the Arrowhead Steel Products Co. to be built at 1101 Stinson boulevard. It will be 2-story, 50 x 300 feet. Splady & Haagenson are contractors for the work.

KANSAS CITY, MO.—Ray A. Rearwin, Salina, Kans., plans the construction of an airplane manufacturing plant at Fairfax airport.

ST. LOUIS.—Wagner Electric Co., 6400 Plymouth street, is erecting a 3-story addition containing 70,000 square feet.

ST. LOUIS.—Von Hoffman Aircraft School, Albert Von Hoffman president, will erect two new hangars and a barracks for students adjoining the St. Louis municipal airport.

ST. LOUIS.—Allegheny Tube & Steel Co., 1304 North Main street, L. A. Crancer president, engaged in manufacturing pipe couplings, nipples and plugs, has been incorporated recently. The company plans to enlarge its present plant with an addition.

ST. LOUIS.—St. Louis Aircraft Corp., formerly the Cardinal Aircraft Corp., a subsidiary of the St. Louis Car Co., 8000 North Broadway, has announced that an assembly plant, 80 x 120 feet, will be erected at Lambert-St. Louis Field.

ST. LOUIS—Wright Aeronautical Corp., Paterson, N. J., plans the construction of a plant for the manufacture of airplane engines. The plant, to be used for assembly work, is expected to be in operation by July.

ST. LOUIS—Allegheny Tube & Steel Co., incorporated recently by L. A. Crancer president, 1308 North Main street, plans to manufacture pipe couplings and plugs and will increase its floor space by 25,000 square feet. Machinery and equipment will be installed.

EDISON, NEBR.—City of Edison will vote on $18,000 bonds for waterworks and distribution system improvements, including pumps, etc.

Southern States

PINE BLUFF, ARK.—Finished Steel Products Co., recently incorporated with $50,000 capital, has selected a site for the construction of a plant in West Pine Bluff, Ark. The company will manufacture steel parts for various types of machinery and appliances. F. S. Dilley is president.

TAMPA, FLA.—Prest-O-Lite Co. Inc., 30 East Forty-second street, New York, plans the immediate construction of an acetylene producing plant.

ATLANTA, GA.—Georgia Power Co. plans the construction of a steam electric power generating plant on Chattahooche river near here. Four units will be erected with 100,000 horsepower capacity and a turbine steam generator, 100,000 horsepower, will be included.

CARTERSVILLE, GA.—Cartersville Foundry & Machine Co., John W. Jackson manager, plans to move its plant to a site south of town where it will erect two buildings for a machine shop and foundry. The foundry will be equipped with machinery for making soil pipe.

OWENSBORO, KY.—Ken-Rad Tube & Lamp Corp. has awarded the contract for a plant addition to A. J. Hoffman Construction Co., Evansville, Ky. (Noted March 21.)

RUSSELL, KY.—Chesapeake & Ohio railroad, Richmond, Va., has awarded the contract for the construction of shops to Hughes-Foulkrod Co., 1505 Race street, Philadelphia. (Noted March 7.)

CHICKASHA, OKLA.—City will vote on $25,000 bonds for waterworks improvements including pumping equipment, etc.

BEAUFORT, S. C.—Low Head Water Power Co. plans hydroelectric development on Jericho Creek.

RIDGELAND, S. C.—Commissioners of Public Works, W. B. Ryan chairman, plans to improve waterworks, etc., including pumping station, etc.

PARIS, TENN.—City of Paris plans the construction of a diesel engine electric light plant.

HOUSTON, TEX.—Texas Iron Works, 1423 Maury street, is building a warehouse addition, 60 x 80 feet.

HOUSTON, TEX.—Peden Iron & Steel Co. has awarded the contract for the construction of an addition to its marine department building to C. W. Ennis, 1401 Dowling building.

HOUSTON, TEX.—Neal Lucey Co., 60 North Hamilton street, is completing plans for new machine shop and foundry to be erected on Greenwood street. Neal Lucey is president.

HOUSTON, TEX.—Texas Brass & Mfg. Co., 1404 Elysian avenue, will build machine shop, 40 x 100 feet, and will enlarge foundry. D. D. Daugherty is manager.

HOUSTON, TEX.—Gray Specialty Co., Ellsworth Gray president, is erecting a shop building for manufacture of oil field tools at Mack street and Navigation boulevard. Machine tool equipment, which will be motor driven, has been awarded Rosenfelder Machinery Co., Post-Dispatch building.

SAN ANTONIO, TEX.—San Antonio Drilling Equipment Co., D. C. McBride manager, has started manufacture and distribution of oil field drilling equipment at 133 West Commerce street.

SAN ANTONIO, TEX.—Grayburg Oil Co., control of which was recently acquired by Indiana Oil & Gas Co., headed by Silas M. Newton, New York, has acquired 280 acres in South San Antonio on which it plans to erect a new oil refinery. Dismantling of the old plant and moving of equipment to the new project has been decided on.

FULTON, VA.—Chesapeake & Ohio railroad, Richmond, Va., has awarded the contract for shop improvements here to Joseph E. Nelson & Sons, Chicago.

New Construction and Enterprise

Recent Incorporations

CHICAGO—Clegg Lock Washer Corp., 30 North Michigan avenue, has been incorporated with $100,000 preferred and 100,000 shares no par value stock to manufacture and deal in lock washers, etc., by Roy E. Clagg.

CHICAGO—Alfred W. Grabo Co., 609 West Lake street, has been incorporated with $4000 capital to engage in engineering and designing business, tool making, brass founder, etc., by Leo Lichtenstein.

CHICAGO—Harry E. Silfen Co., 429 West Superior street, has been incorporated with $10,000 capital to manufacture and deal in wrought iron products, metal products, etc., by Harry E. Silfen.

CHICAGO—Reliance Dental Mfg. Co., 159 North State street, has been incorporated with 6000 shares no par value stock to manufacture and deal in dental goods and supplies, by Jerome J. Sladkey.

CHICAGO—Stein Electric Construction Co. Inc., 186 West Lake street has been incorporated with $10,000 capital to manufacture and deal in motors, etc., by R. Cantor.

BOSTON—Meadows New England Co. Inc. has been incorporated with $100,000 capital to manufacture electrical machinery and appliances by George H. Lucey, Swampscott, Mass.

BOSTON—Bon-Roy Corp. has been incorporated with 1000 shares no par value stock to manufacture machinery, devices, etc., by Jacob Tarbish, Chelsea, Mass.

BOSTON—Atlantic Marine Airways Inc. has been incorporated with 1000 shares no par value stock to manufacture all types of aircraft, boats, etc., by Clarence M. Ewan, 141 Jovenita Canyon, Los Angeles.

BOSTON—Rollingscreene Corp. has been incorporated with $150,000 preferred stock and 10,000 shares no par value stock to manufacture window screens and appliances, by Maurice O. Goldsmith, 36 McLellan street, Dorchester, Mass.

NEWTON, MASS.—Newton Roofing Co. has been incorporated with $90,000 capital to engage in the roofing, metal and tinsmithing business, by Frederick R. Basley, 17 Pleasant street.

SALEM, MASS.—Lasher-Weber Co. has been incorporated with $10,000 capital to manufacture torches of all kinds, hardware accessories, etc., by Arthur Goddu, 18 St. Paul street.

SOUTH NATICK, MASS.—Centerbar Screen Co. Inc., 6 Lincoln street, has been incorporated with 15,000 preferred shares and $35,000 in common stock to manufacture screens, screen frames, etc., by Lorenzo R. Centerbar.

SPRINGFIELD, MASS.—Marion Mining Co. has been incorporated with 900 shares no par value stock to mine, mill, concentrate and smelt metals, by Harvey H. Moses, 56 Riverside street, West Springfield, Mass.

WORCESTER, MASS.—Hawes Mfg. Co. Inc. has been incorporated with 1000 shares no par value stock to manufacture and deal in incinerators and heating, plumbing, etc., by Robert J. Holmes, 3 Lakeview road, Winchester, Mass.

DETROIT—Towne Robinson Co., 5736 Twelfth street, has been incorporated with $40,000 capital to manufacture and deal in machinery and kindred products, by Mark J. Towne.

DETROIT—Majestic Tool & Mfg. Co. has been incorporated with $15,000 capital to manufacture and deal in machines, tools, etc., by John W. Parker.

DETROIT—Universal File Sharpening Co. has been incorporated with $25,000 capital to manufacture and deal in file sharpeners, by Charles T. Opperman, 5559 Beaubien street.

DETROIT—Detroit Radio Products Corp., 1040 West Fort street, has been incorporated with 100,000 shares no par value stock to manufacture and deal in radio tubes and equipment by John Ross.

DETROIT—Use-All Welder Point Co., 13518 Plymouth road, has been incorporated with $12,500 capital to manufacture and deal in machinery and appliances by Benjamin P. Lloyd.

KANSAS CITY, MO.—Crago Gear & Machine Works has been incorporated by Edward C. Crago, 4345 Benton boulevard.

KANSAS CITY, MO.—California Columbian Steel Tank Co. Ltd. has been incorporated by A. A. Kramer, 420 North River Bend.

NEWARK, N. J.—Coerdes Metal Goods Inc. has been incorporated with $50,000 in preferred stock and 500 shares no par value stock to manufacture metal novelties by Charles L. Hedden, Newark, attorney.

NEWARK, N. J.—Newark Metal Screen Co. Inc. has been incorporated with $200,000 in preferred stock and 40,000 shares no par value stock by William H. Parry. Newark, attorney.

BUFFALO—Schwenzer Tool & Die Co. has been incorporated with $20,000 capital by E. J. Coonly, Liberty Bank building, Buffalo, attorney.

NEW YORK—Long Island Sheet Metal Works & Roofing Co. has been incorporated with $10,000 capital by J. B. Mitchell, Jamaica, N. Y.

NEW YORK—James F. Taylor Steel Co. has been incorporated with $10,000 capital by J. W. Anderson, 233 Broadway, attorney.

NEW YORK—Apollo Die, Tool & Metal Stamping Corp. has been incorporated with $20,000 capital by L. M. Weber, 370 Seventh avenue.

UTICA, N. Y.—Universal Pressing Machine Co. has been incorporated with $250,000 in preferred shares and 10,000 shares no par value stock by Fuller & Hubbard, Utica, attorneys.

MARSHFIELD, OREG.—Pacific Iron & Marine Works, 509 Hall building, has been incorporated with $25,000 capital by C. R. Haning and associates.

PHILADELPHIA—Premier Case Opener Inc. has been incorporated with 1000 shares no par value to manufacture and deal in implements or cutters for opening cases, boxes, etc., by Joseph C. Trainer, 820 South Second street, Philadelphia.

PHILADELPHIA—Runeco Mfg. Co. has been incorporated with $10,000 capital to manufacture and deal in mine, mill, plant and industrial supplies, etc., by Harold V. D. Menaugh, 5902 Jefferson street.

PHILADELPHIA—Brooke Engineering Co. Inc. has been incorporated with $50,000 capital to manufacture and deal in heating and gas apparatus of all kinds by George A. Brooke, 5513 Morris street.

PITTSBURGH—Pittsburgh Stoker Co. Inc. has been incorporated with $5000 capital to manufacture, service and install stokers, boilers, etc., by Fred C. Hinkel Jr., R. D. No. 7, Bellevue, Pa.

PITTSBURGH—Horix Mfg. Co. has been incorporated with 500 shares no par value stock to manufacture and deal in iron and steel products, etc., by J. H. Beal Jr., Union Trust building.

VERONA, PA.—Fabricated Steel Products Co. has been incorporated with $5000 capital to fabricate and weld all kinds of steel products, etc., by C. F. C. Arensberg, 834 Amberson avenue, Pittsburgh.

MILWAUKEE—Allegheny Metal Mfg. Co. has been incorporated to manufacture and deal in metals, alloys, tools, machinery, etc., with $50,000 preferred stock and 1000 shares no par value stock by Walter J. Wachowitz, 533 Thirty-fifth street; Angeline Wachowitz, and David J. LaPoint.

New Trade Publications

FORGINGS—National Machinery Co., Tiffin, O., is circulating a reprint of a paper by E. R. Frost, its president, on the quality of upset forgings. It is illustrated to amplify the text.

ADVISORY RESEARCH—Finishing Research Laboratories Inc., Chicago, has issued a booklet outlining its service in problems of finishing, by tumbling, dipping, ovens, spraying or other means.

ALLOY CASTINGS—Alloy Cast Steel Co., Marion, O., has prepared a reference card of comparative casting material data, giving ultimate yield, elongation, reduction and brinell hardness.

CONVEYORS—Mathews Conveyor Co., Ellwood City, Pa., in a current bulletin suggests the use of gravity with electric power to save labor and increase production, through application of its type of conveyors.

ELECTRIC FANS—Additional sheets for its lose-leaf catalog have been prepared by the Century Electric Co., St. Louis. They cover various types of fans for use with alternating and direct current.

TRACTORS—Caterpillar Tractor Co., San Leandro, Calif., shows a number of uses to which its product is put in various parts of the world. Most of the story is told in pictures in its occasional magazine publication.

ZINC ALLOY—A bulletin by the New Jersey Zinc Sales Co., New York, is devoted to corrugated zinc alloy roofing and siding, with illustrations showing methods of application and accessories for its use.

CLUTCHES—Carlyle Johnson Machine Co., Manchester, Conn., has issued a looseleaf catalog showing various sizes and types of friction clutches, prices and dimensions. Uses in various branches of industry are grouped and a wide variety of applications is indicated.

YOKE RIVETERS—A catalog of its riveters has been issued by the Hanna Engineering Works, Chicago. Details of construction are illustrated and various types for different uses are shown. Tables of specifications guide to choice of the proper type for the work in hand.

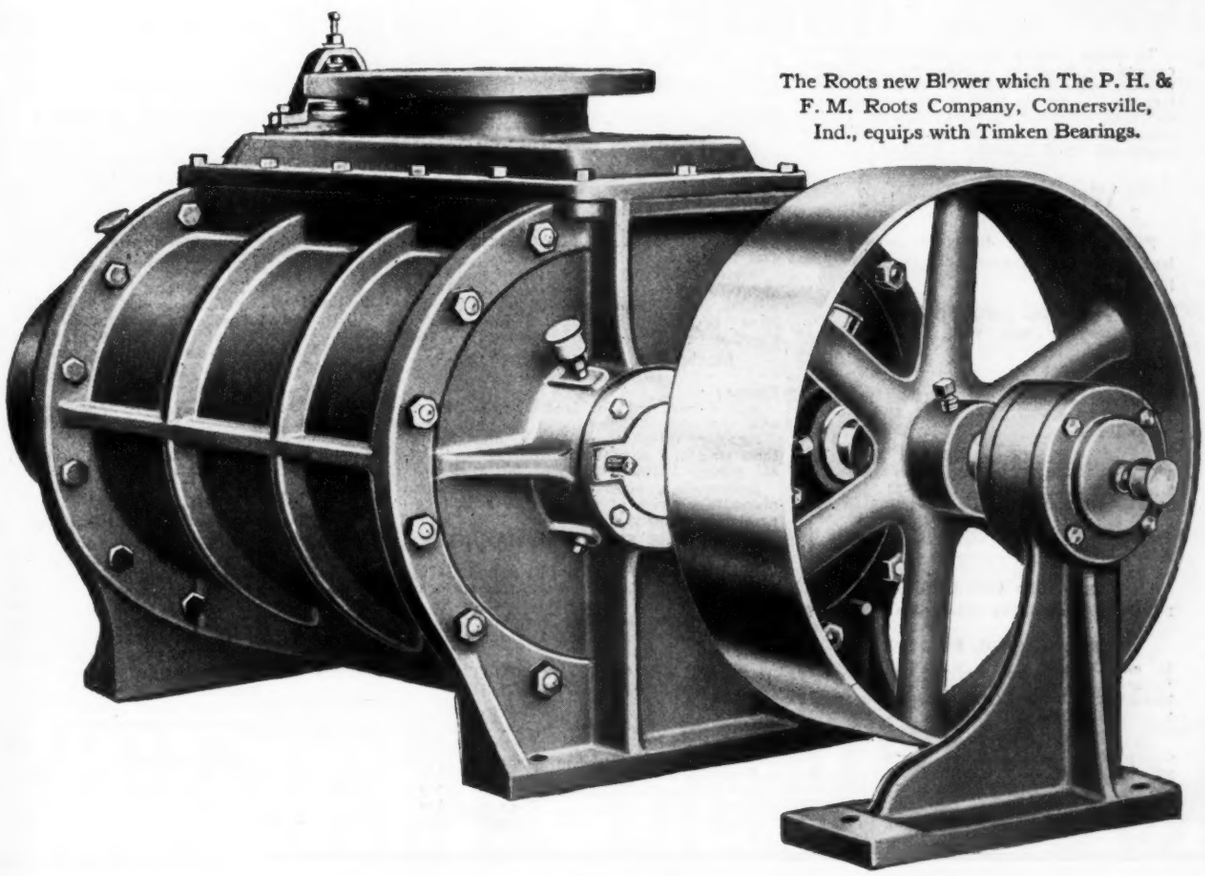
TIMKEN *Tapered Roller* BEARINGS

The name Roots signifies the highest possible standards for blowers and pumps of the rotary positive displacement type.

Timken Bearings give the added benefits that accrue through anti-friction, protection against premature wear, and the carrying of thrust, shock and speed as well as radial loads.

More compact mountings, more economy in power and lubricant and more endurance are betterments brought into all machinery by Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken electric steel.

THE TIMKEN ROLLER BEARING CO.
CANTON, OHIO



The Roots new Blower which The P. H. & F. M. Roots Company, Connersville, Ind., equips with Timken Bearings.

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

Butt Weld

	Black	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Large jobbers obtain additional discount of 1 point with supplementary discounts of 6 and 2½ per cent on black and galvanized.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. On 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c

Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

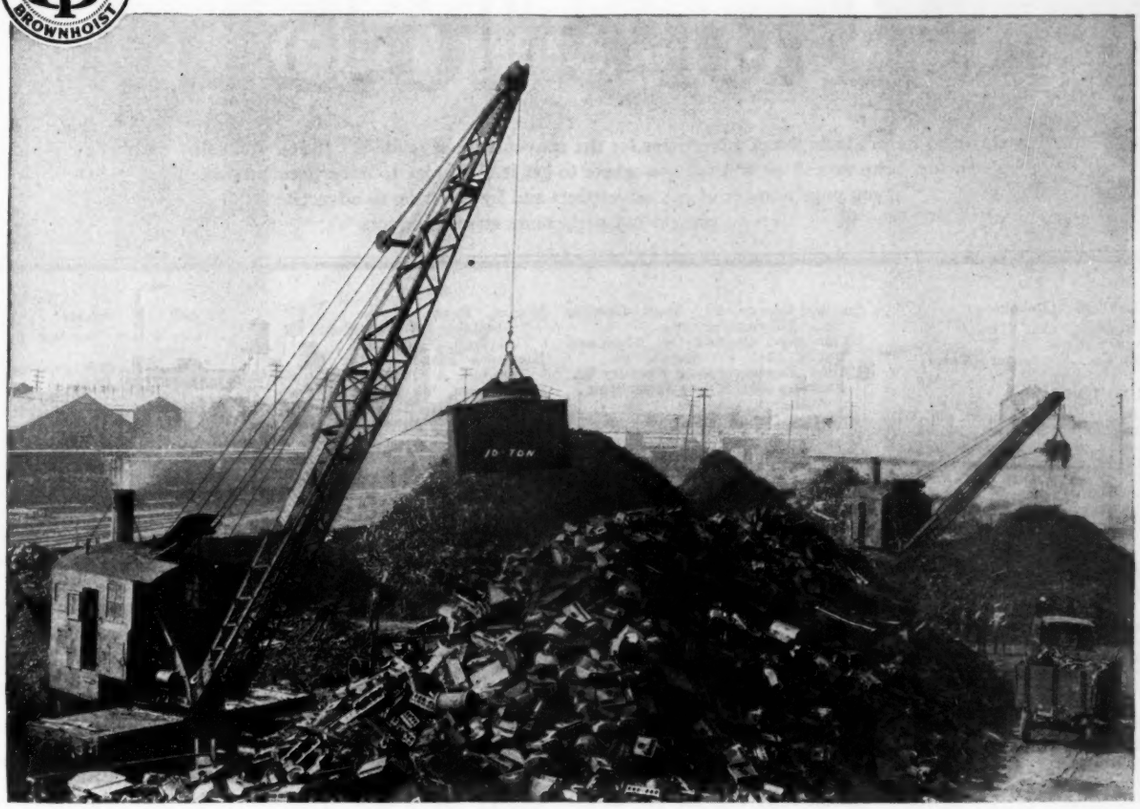
Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)
Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)
Additional extra ..... .20c



Don't Waste Human Brawn

A crew of loyal workmen constantly giving its best and trying to complete a given job—that is probably the set-up in your shops and yard, and still the production costs may be unsatisfactory.

The foundation of quantity production is efficient material handling methods. They affect everybody from the man in the power house to the shop superintendent. Without the best equipment your output suffers and you are wasting a big percentage of the money paid in wages.

The above illustration shows two Industrial Brownhoist steam operated cranes handling scrap with lifting magnets. Scrap, castings, pigs and rails can be handled in record time by these cranes, as can all kinds of hook and clamshell work.

Industrial Brownhoist offers you a most complete line of crane equipment on railroad or crawler trucks.

If you are not sure that your materials handling machinery is the best obtainable, let an Industrial Brownhoist representative check over that factor of your plant operation? He will be glad to do so, without obligation.

Industrial Brownhoist Corporation, General Offices, Cleveland, Ohio

District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, New Orleans, San Francisco.

Plants: Brownhoist Division, Cleveland; Industrial Division, Bay City, Michigan; Elyria Foundry Division, Elyria, Ohio.

INDUSTRIAL BROWNHOIST

"Where-To-Buy"

A classified by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

ABRASIVES (Polishing)
Carborundum Co., The, Niagara Falls, N. Y.
Norton Co., Worcester, Mass.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 410 Oliver Bldg., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM BRONZE (Acid Resisting)
Duriron Co., Inc., The, Dayton, Ohio.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Petroleum Iron Works Co., The, Sharon, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.

ANVILS (Cast Steel)
West Steel Casting Co., 805 E. 70th St., Cleveland, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

ARCHES (Suspended)
Detrick, M. H., Co., 140 S. Dearborn St., Chicago, Ill.

ARCHITECTS (Industrial)
Austin Co., The, 16112 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., 3675 E. 78th St., Cleveland.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARS (Alloy)
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.

BARS (Concrete Reinforcing)
American Steel & Wire Co., 208 S. LaSalle St., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Nicetown Plate Washer Co., Inc., Juaniata & Clarissa Sts., Nicetown, Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

BARS (Iron)—See IRON (Bar)

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Pacific Coast Steel Co., Hunter-Dulin Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Youngstown Sheet & Tube Co., Youngstown, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
Phoenix Iron Co., The, 20 So. 15th, Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

BEARING METAL
Williams Alloy Products Co., The, Elyria, Ohio.

BEARINGS (Ball)
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.
Williams Alloy Products Co., The, Elyria, Ohio.

BEARINGS (Motor)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller)
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS AND BUSHINGS (Brass and Bronze)
Erie Bronze Co., 402 W. 19th St., Erie, Pa.
Williams Alloy Products Co., The, Elyria, Ohio.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., The, 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Construction Co., The, Union Trust Bldg., Pittsburgh, Pa.

BILLETS (Alloy and Carbon Steel)
Central Alloy Steel Corp., Massillon, O.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Washburn Wire Co., Phillipsdale, R. I.

BILLETS (Die Stock Steel)
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.

BILLETS (Forging)
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Erie Forge Co., Erie, Pa.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

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